ANNUAL MANAGEMENT REPORT

1976
BRISTOL BAY AREA

Alaska Department of Fish and Game
Commercial Fisheries Division

TATE
of ALASKA

MEMORANDUM

TO: Report Recipients

DATE: January 29, 1979

FILE NO:

TELEPHONE NO:

FROM: Michael L. Nelson
Senior Area Mgt. Biologist
Department of Fish and Game
Division of Commercial Fisheries
Dillingham

SUBJECT: 1976 Bristol Bay Annual Management Report

The attached report represents our continuing efforts to up-date and up-grade fishery statistics useful in describing the Bristol Bay fishery.

The new format and data tables first included in 1975 have been continued. I believe this new revised edition of our annual management report series will be most useful in explaining and describing management rationale, as well as a better source for compiled C/E information on all species.

This report is not intended for the general public and is for Inter-Departmental Use Only. It will be distributed only within Department circles with certain exceptions.

Please route needed corrections or comments to me here in Dillingham. The 1977 and 1978 annual management reports are in various stages of completion. We hope to complete the '77 report by the early fall of 1979, and both the 1978 and 1979 reports by the spring of 1980.

cc: Nelson, Dillingham
Skrade, Dillingham
Meacham, Anch.
Fried, Dillingham
Bill, King Salmon
Sanders, Soldotna
Gwartney, King Salmon
Middleton, Anchorage
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ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

ANNUAL MANAGEMENT REPORT

-1976-

BRISTOL BAY AREA

STAFF

Dillingham - P.O. Box 199 (99576)

Michael L. Nelson - Area Biologist
Jeffrey R. Skrade - Asst. Area Biologist
Trudy Ward - Clerk Typist

King Salmon - P.O. Box 37 (99613)

Don L. Bill, Jr. - Asst. Area Biologist
Gary H. Sanders - Asst. Area Biologist
Merle C. Tuck - Maintenance Mechanic

Anchorage - 333 Raspberry Road (99502)

Richard C. Randall - Asst. Area Biologist
Kenneth P. Parker - Research Project Leader
Paul V. Krasnowski - Research Asst.
Phyllis Lowe - Clerk Typist

January 29, 1979

PREFACE

The 1976 Bristol Bay Management Report is the seventeenth consecutive annual volume reporting on and detailing management activities of the Division of Commercial Fisheries staff in Bristol Bay. This review emphasizes a descriptive account of the administration of the Bristol Bay commercial fishery resources, as well as outlining management objectives and procedures. Our basic objective in producing this document is to assist in creating a better understanding of the commercial fisheries management program in Bristol Bay.

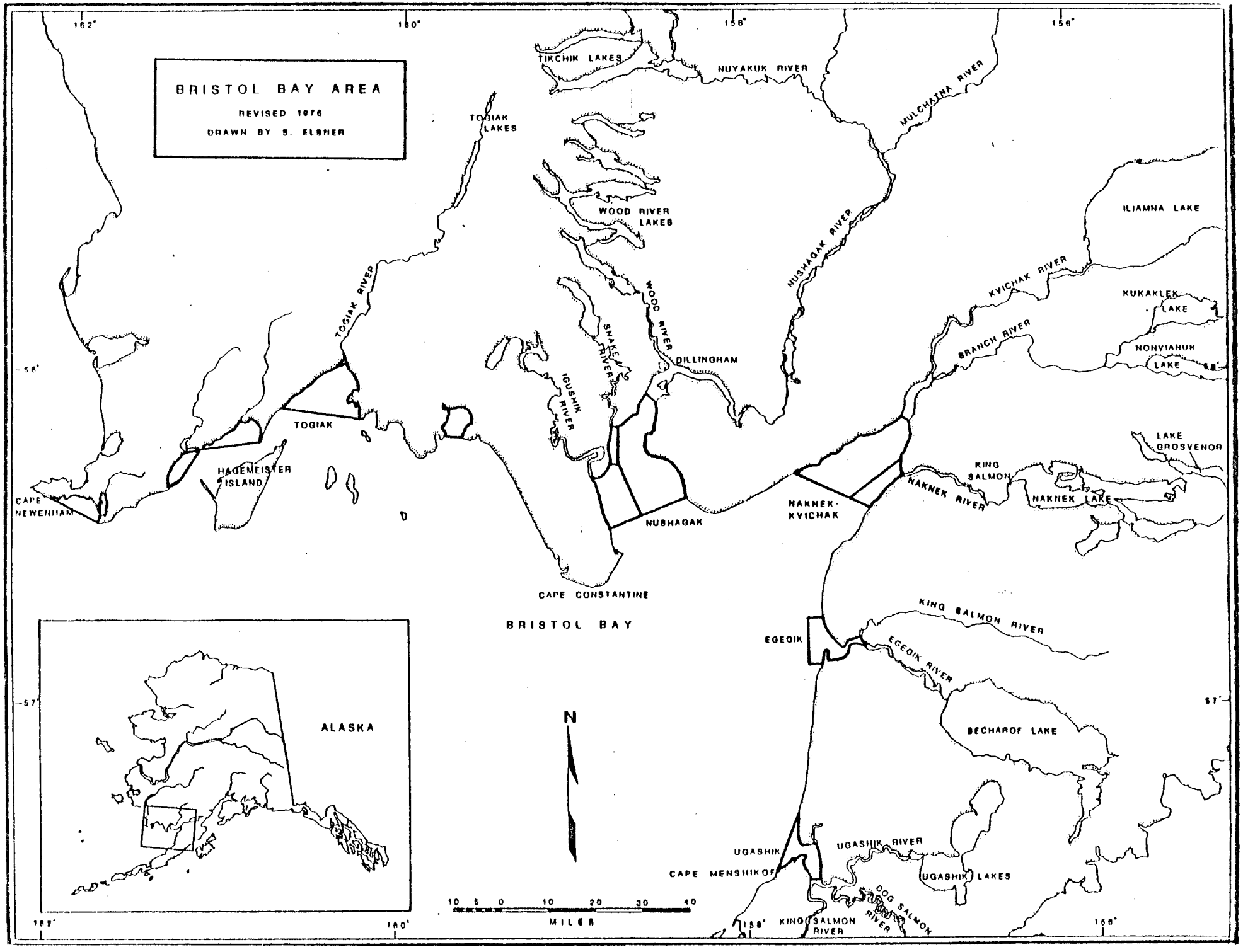
Extensive reorganization of the documentation in this review, which was begun in 1975, represents our continued efforts to update and evaluate all information deemed necessary to fully explain the rationale behind management decisions formulated in 1976. The extensive set of tables and appendix tables represents our efforts to update past information and to record material previously unlisted that may be useful and informative.

Fishery data contained in this report supercedes information in previous reports. Unless otherwise noted, all 1976 commercial catch data is preliminary, while all other statistics are final.

Data tabulation has been divided between current year TABLES (1976) and comparative APPENDIX TABLES (1957-76) in an effort to increase the ease with which this report may be used for reference purposes. Data reference sources on all appendix tables are numbered to correspond with document numbers in the Literature Cited section. Appendix tables include data over a 20-year time span (1957-1976), except where information is not available. Tables 31, 32 and 33 are considered confidential, and therefore will appear only in a limited number of copies of this report. The report itself is considered to be "FOR INTER-DEPARTMENTAL USE ONLY".

Corrections or comments on the contents of this report should be directed to the area office at Dillingham, Attention: Editor.

Michael L. Nelson, Editor
Area Biologist
Bristol Bay


BRISTOL BAY AREA
REVISED 1976
DRAWN BY S. ELSNER
162°
160°
158°
156°
58°
57°
TIKCHIK LAKES
NUYAKUK RIVER
MULCHATNA RIVER
TOGIAK LAKES
WOOD RIVER LAKES
NUSHAGAK RIVER
ILIAMNA LAKE
KVICHAK RIVER
KUKAKLEK LAKE
BRANCH RIVER
NONVIANUK LAKE
TOGIAK RIVER
SNAKE RIVER
WOOD RIVER
IGUSHIK RIVER
DILLINGHAM
TOGIAK
HAGEMEISTER ISLAND
CAPE NEWENHAM
NUSHAGAK
NAKNEK-KVICHAK
LAKE GROSVENOR
KING SALMON
NAKNEK RIVER
NAKNEK LAKE
CAPE CONSTANTINE
BRISTOL BAY
KING SALMON RIVER
EGEGIK
EGEGIK RIVER
BECHAROF LAKE
ALASKA
N
UGASHIK
UGASHIK RIVER
CAPE MENSHIKOF
UGASHIK LAKES
DOG SALMON RIVER
KING SALMON RIVER
10 5 0 10 20 30 40
MILES

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ANNUAL MANAGEMENT REPORT

BRISTOL BAY AREA

-1976-

INTRODUCTION

After substantially reduced runs in 1972-73 and 1975, the inshore return of sockeye salmon to the Bristol Bay watershed in 1976 amounted to 11.5 million fish, compared with the pre-season inshore forecast of 11.1 million (Table 1). Additionally, the commercial harvest of 5.6 million sockeye was above the non-peak year average of 5.1 million since 1957, and was almost equal to the forecasted pre-season inshore harvest of 5.7 million. Similarly, sockeye escapement goals were achieved or exceeded in 9 of 11 river systems in Bristol Bay, with only one major system (Ugashik) falling substantially short of the desired escapement.

As outlined in the Department's annual pre-season "Management Outlook" publication (APPENDIX A), management effort in 1976 was directed at achieving sockeye escapement goals in all systems, while allowing early-season testing of run strength with the use of short fishing periods.

The utilization of short fishing periods in 1976 provided a valuable means to help gauge run strength to individual districts as they developed, and along with the Department's standard comprehensive program of offshore and inshore test fishing, aerial surveys and escapement enumeration, eventually provided an accurate picture of run development, which in turn allowed a balanced distribution between the commercial catch and subsequent escapement.

Like 1975, total available commercial fishing effort was expected to approach the high levels of previous years. The forecast of fishing effort proved accurate when 2,176 units of gear and 1,669 fishing vessels registered to fish Bristol Bay, compared with 2,271 and 1,642 respectively in 1975 (Appendix Table 6). Over-all, total fishing vessel registration in 1976 was reduced 8% over the previous 12-year average (Appendix Table 8). Of the total licensed

gear (2,176), it is estimated that only 1,590 units, or 73%, actually participated in the fishery (Appendix Tables 7 and 8).

District registration in 1976 was similar to previous years, with Naknek-Kvichak and Nushagak districts accounting for over 75% of the total (Table 3). Registration by residency continued to show an overall resident/non-resident ratio of 2 to 1, with the usual district ratios: Naknek-Kvichak and Egegik districts with nearly equal numbers of resident and non-resident fishermen, while the remaining district fishermen were primarily residents (Table 3).

The sliding gear schedule, which adjusts the maximum amount of gear allowed per fisherman based on the relationship of forecasted harvest and number of licensed fishermen, was repealed by the Alaska Board of Fisheries for 1976 and replaced with the previous "standard" complement of gear: 150 fathoms of drift gear and 50 fathoms of set net gear.

Salmon price negotiations between the industry and the two active fishermen groups in Bristol Bay were concluded early in the season and little fishing time was lost. Western Alaska Cooperative Marketing Association (WACMA) settled prices in mid-May, while the Alaska Independent Fishermen's Marketing Association (AIFMA) finally settled in late June. Fishermen in both the Naknek-Kvichak and Egegik districts lost some fishing time due to unsettled fish prices; however, other major districts were not affected. Final fish prices in 1976 showed a substantial increase over prices in 1975 on all salmon species (Appendix Table 20).

Unlike 1975, when only 63% of the available canning lines were operational, the good sockeye forecast prompted the salmon canning industry to make operational over 85% of the Bay's available canning lines (Table 30). Only two major companies with potentially operational canning lines did not can fish in 1976 (New England Fish Co. at Pederson Point in the Naknek-Kvichak district, and Diamond E Fisheries at Egegik in the Egegik district). The salmon processing industry was able to adequately handle and process the salmon run in 1976 without undue difficulty.

For the third consecutive year the Japanese high seas mothership salmon fleet, through an informal bilateral agreement, did not fish in areas where Bristol Bay sockeye predominate in late May and early June. Total Japanese high seas harvests by the mothership fleet from the 1976 Bristol Bay sockeye run included 257,000 fish taken as immatures in 1975, and 677,000 fish harvested as matures in 1976, or 934,000 fish and 8% of the total Bay Run (Appendix Tables 3 and 4). This level of interception is well below the 20-year average of 12% and 2.2 million fish, and continues to show the value of recently negotiated restrictive agreements (Appendix Table 3).

For the fourth consecutive year the Alaska Board of Fisheries imposed a catch quota, or guideline harvest level on the sockeye salmon fishery at South Unimak (False Pass) and Shumagin Islands. Mixed stocks of sockeye bound for distant systems have historically been intercepted by these two fisheries. To help insure that sockeye runs to individual river systems were not over harvested, the Board of Fisheries placed a catch restriction on these two fisheries, which was based on the forecasted harvest of sockeye in Bristol Bay.

The guideline harvest levels (quotas) were based on past historical harvest patterns and in 1976 amounted to 350,000 sockeye for South Unimak and 75,000 for the Shumagin Island fishery. The actual sockeye catch in the Shumagin area of 73,000 closely matched the quota, while the catch in South Unimak of 245,000 was well below the quota (Appendix Table 34).

Although the South Unimak sockeye catch in 1976 was below that expected and did not indicate an exceptionally strong run, analysis of data collected from the Department's offshore test fishing program at Port Moller and from CPUE data by area from the Japanese mothership fleet, indicated a probable total sockeye run to Bristol Bay in the magnitude of 14-17 million, well above the forecast of 11.1 million (Table 5).

The basis for the in-season forecast using Japanese mothership fleet distribution and CPUE was complicated and considerably weakened by the

southerly "uncommon" distribution of the fleet making the catch per effort incomparable to previous years.

The Department's offshore test fishing program at Port Moller also indicated a run stronger than forecast, but one that would probably fall within the upper range of the pre-season forecast (Table 5). Data collected at Port Moller also suggested an atypical bimodal late run, as well as an unusually large chum salmon run (Table 5). Both prognostications proved true as the sockeye run was 4-5 days late and exhibited a bimodal entry pattern, while the chum run was the largest in the recent history of the fishery.

1976 SALMON FISHERY

As already briefly outlined, the 1976 sockeye salmon inshore run to Bristol Bay totaled 11.5 million which was only 3% over the pre-season forecast of 11.1 million and 5% higher than the average for all non-peak past years in the same relative position of the five year Kvichak River production cycle (Table 1). The final sockeye escapement of 5.9 million was only 8% over the total pre-season goal of 5.5 million (Table 1). Escapement goals within the management range were obtained in most major systems in 1976. The final Ugashik River escapement fell below the management range, while the Naknek, Nuyakuk and Togiak River system escapements were above the management range (Table 1). This is the third consecutive season that most major river systems in Bristol Bay have received sockeye escapements within the optimum management range.

The commercial sockeye catch of 5.6 million was equal to the pre-season forecasted harvest of 5.7 million, but was 23% below the previous 20-year average of 7.3 million (Appendix Table 9). The sockeye harvest in 1976 was estimated to have generated approximately 17.1 million dollars in revenue to the fishermen (Appendix Table 21).

The 95,000 king salmon harvest slightly exceeded the 20-year long-term average of 92,000, and reversed the downward trend of king catches that began in 1972 and continued through 1975 (Appendix Table 10). King salmon

escapement indices in those river systems surveyed were the highest ever recorded, indicating an exceptional escapement and total run (Table 27).

The chum salmon run was extraordinarily stronger than anticipated. The harvest of 1.4 million fish was 136% above the 20-year average of 579,000, the largest catch since 1916 (1.5 million), the second largest catch in the 84 year history of the fishery and the largest catch in the State of Alaska's 12 major fishing areas in 1976 (Appendix Table 11). The escapement of chums was equally large, with the Bay-wide chum escapement estimated at about 1.1 million, and the total run amounting to 2.5 million fish.

A formal pre-season forecast is also prepared for Nushagak district pink salmon from escapement/return (E/R) data collected in this district since 1958 (Appendix Table 33). The 1976 return of 1.6 million pinks to Nushagak district was only 53% of the pre-season district forecast of 3.0 million fish (Appendix Table 12). Although the actual pink salmon run was less than anticipated, the 1.0 million commercial harvest closely matched the long-term average catch of 1.1 million, while near optimum escapements were obtained in all river systems with important pink spawning stocks (Table 27 and Appendix Tables 12 and 33).

Coho salmon were taken incidentally to other species in 1976 and the commercial catch of 22,000 coho was well below the long-term average of 43,000 fish (Appendix Table 13). The low coho catch was attributed mainly to lack of late season fishing effort.

The total commercial harvest of 8.1 million salmon of all species was comparable to the 20-year average of 8.5 million, and the total catch produced over 21.9 million dollars in revenue to the fishermen of Bristol Bay (Appendix Tables 14 and 21).

NAKNEK-KVICHAK DISTRICT

Pre-season expectations in the Naknek-Kvichak district were for an inshore run of about 6.7 million sockeye salmon, with a probable harvest of 3.7 million after escapement requirements were met (Table 1). Harvestable numbers of sockeye in excess of escapement requirements were expected to allow fishery managers some degree of latitude during early-season run development.

Several early-season fishing periods were allowed in the Naknek-Kvichak district in late June to test run strength. Two of these short 12-hour periods on June 25 and June 27 produced nothing of significance due to the fishermen-industry price dispute discussed earlier.

Through June 26 offshore test fishing at Port Moller indicated a passage of about 4.0 million sockeye salmon and at this rate was interpreted to indicate a total run of 11-13 million fish (Table 5). In addition, a strong chum salmon run was indicated from the very high Port Moller chum indices, as well as a possible delay in migration timing (late run) due to unusually colder than normal water temperatures.

A third 12-hour "test" fishing period was announced for the Naknek-Kvichak for June 29, and near maximum fishing effort was expected due to the successful conclusion of price negotiations between fishermen and industry on June 28. Fishing effort on June 29 was estimated at about 600 drift boats and 130 set nets and the catch amounted to 219,000 fish (Table 10). By season-end over 200 boats had transferred into Naknek-Kvichak from other areas (Table 10). Peak season effort was tallied on July 5, when 816 drift boats and 177 set nets participated in the fishery (Table 10).

Sockeye salmon escapement trends in Naknek and Kvichak Rivers, and two test fishing trips by the outside test boat revealed that through July 1, no significant buildup of fish had taken place within or outside of the district (Tables 6 and 20). Through July 1 less than 1% of the Kvichak River escapement goal had been accounted for, whereas, over 7% is the normal cumulative escapement

by this date. In the Naknek River only 4% of the required escapement was accounted for as compared to the average of 18% through July 1 (Table 18). It was suspected, but not yet confirmed, that the unusually late spring breakup and colder than normal water temperatures might be delaying the migration timing into Bristol Bay.

The outside Naknek-Kvichak test boat catches began to show strength on July 2 when significant buildup of fish was detected in the area from the mouth of Naknek River to as far south as Johnson Hill and Low Point (Table 6). With this strong showing, and a significant increase in the daily rate into Naknek River (from 43,000 fish on July 1 to 131,000 on July 2), a 12-hour period was announced for Naknek section only for July 3. The Kvichak section was kept closed due to: (1) the poor escapement past the Kvichak tower (less than 1% of the escapement goal achieved through July 2); (2) a poor showing of fish in the river as indicated by aerial survey on June 29; (3) a poor showing of fish in the lower river as indicated by the inside test fishing program at Nakeen; and (4) a slow but spotty buildup of fish within the Kvichak section as evidenced by outside test boat catches on July 2 (Tables 6 and 20).

Along with the reasonably good catches for the July 3 "Naknek only" period (396,000), the Naknek River escapement began to accelerate rapidly, and by July 4 it was calculated that well over 50% of the Naknek escapement goal would be achieved by July 5 (Table 18).

The cumulative sockeye catch of 592,000 through July 3 was only 16% of that expected if the forecast were reasonably accurate; therefore a district wide 12-hour period was announced for July 5 based on two days (July 3-4) of strong catches at the Nakeen inside test site on Kvichak River and the first good aerial survey sighting of fish in Kvichak River on July 4 (Table 20). Even though the Naknek River escapement rate dropped drastically on July 4, as a result of the fishing period the previous day, over 59% of the escapement goal was already achieved.

The sockeye catch of 422,000 on July 5 brought the district catch to over 1.0 million (Table 10). Meanwhile, both Kvichak and Naknek River escapements were

progressing well enough that another district wide 12-hour period was announced for July 6 (Table 9). Kvichak River was estimated to have received about 1.0 million fish (tower count plus river aerial survey estimate) or 50% of the escapement requirement, while Naknek River had received over 75% of escapement requirements (Table 18 and 20).

Fishing time in Naknek section was extended 12 hours when the actual escapement through July 6 was over 83% of that required (Table 18). Kvichak section was allowed to close as the 1.0 million total escapement estimate made on July 5 appeared to be high after further surveys and tower rates through July 6 indicated a total escapement of about 800,000 fish (Table 20). Total sockeye harvest through the Naknek section 12-hour extension on July 6-7 amounted to 1.3 million fish, and 36% of the pre-season forecasted harvest (Tables 1 and 10).

Escapement rates into both Kvichak and Naknek Rivers continued to decrease from July 6 through July 8, indicating a normal peak run timing. Since less than ½ the expected run had been accounted for by July 6, concern over the fate of the sockeye run in this district was becoming acute. Although escapement into Naknek River was over 83% of that required through July 6, the rapidly falling daily escapement rate indicated that additional closed time would be necessary to achieve escapement goals if additional fish weren't forthcoming (Table 18). The escapement into Kvichak River was of special concern by July 6, as only 32% of the required escapement had passed the counting stations, with both the aerial survey and inside test fishing programs indicating a low and dropping rate of fish moving into the river (Table 20).

After very disappointing outside test fishing catches on July 7 (Table 6), General Announcement No. 2 was issued which indicated "that the inshore sockeye run was not developing as forecasted", and "that no additional fishing time is anticipated....in the immediate future" (Table 9).

Kvichak River escapement continued to lag badly, and a decision was reached by July 8, to allow the Naknek River escapement to exceed the escapement goal to

provide maximum protection to Kvichak sockeye stocks. Fishing time was to be allowed in Naknek section only if the escapement rate picked up significantly.

By July 9 the general situation had begun to improve. The Naknek River escapement rate began to increase dramatically the morning of July 9, while both the outside and inside (Nakeen) test fishing programs indicated a significant buildup of fish was occurring in the district (Tables 6 and 20). Attention at this time was focused back on the Port Moller test fish program. Port Moller catches suggested the strong possibility of a bimodal run. Peak catches at Port Moller occurred on June 29 (3 days later than normal), and again on July 5 (Table 5). The 6 days that separated the two peaks at Port Moller were followed by a similar bimodal entry pattern inshore with comparable time span separation.

A decision to re-open Naknek section to fishing on July 10 was made on July 9 after weighing the increased daily escapement rate, and substantially improved outside test boat catches between the mouth of Naknek River and Middle Bluff (Tables 6 and 18). By July 10, the Naknek River escapement goal had been achieved, and fishing time was extended until further notice (Table 9). Consideration was given to a relocation of the inside Naknek River boundary, but it was decided that this move would do little to improve the balance between catch and escapement of the Naknek River sockeye salmon stocks.

A 12-hour Kvichak section fishing period was announced for July 11, when both the inside test fishing program, and aerial survey assessment of river escapement, indicated that over 80% (1.6 million) of the escapement goal was assured (Table 20). Further aerial assessment of Kvichak River escapement on July 11 indicated that the 2.0 million goal was assured, and consequently fishing time in the Kvichak section was also extended until further notice (Tables 9 and 20).

Fishing continued from July 10 until July 17, and then resumed the normal 5 day-per-week schedule. Sockeye catches amounted to 1.3 million fish after unrestricted fishing was announced, and totaled 2.6 million for the season (Table 10).

Industry production capacity in this district was adequate to process both

local caught fish, as well as those fish tendered from other districts for processing. Although canning of fish dominated the production, well over ½ million Naknek-Kvichak fish were tendered or airlifted out of Bristol Bay for processing this season (Table 32). Fishermen in this district were not placed on limits at any time during the season.

In-season manipulations of fishing time between Kvichak and Naknek sections produced a Kvichak River sockeye escapement of 1.965 million compared to the goal of 2.000 million, and 1.3 million into the Naknek system with a goal of .8 million (Table 1). The Naknek River escapement goal was exceeded, due primarily to our intentions to protect Kvichak (and Naknek) sockeye stocks when it appeared on July 6-8 that the run was about half of that expected. Even though the Naknek River escapement goal was exceeded, prior records of sockeye escapements of this size, indicate a favorable return per spawner at this level.

Overall, the Naknek-Kvichak district sockeye escapement of 3.4 million was 11% less than the 20-year average of 3.8 million with Kvichak River peak-year escapements not included (Appendix Table 28). The total sockeye run to this district amounted to 5.9 million, compared with a forecasted inshore run of 6.7 million, and non-peak year average run of 6.4 million (Appendix Table 28).

Age composition of the sockeye run was dominated by 5-year old fish (74%) from the 1971 brood year, with smaller contributions from 4 and 6-year old brood stocks (7% and 19%, respectively) (Table 17).

Commercial catches of other species of salmon were substantially higher in 1976 than long-term averages. The chum salmon catch of 322,000 was the largest since 1939 (387,000) and 2.5 times greater than the long-term average of 124,000 (Appendix Table 11). The pink salmon commercial catch totaled 261,000, well above the long-term average of 133,000, but below what had been expected (500,000) (Appendix Table 12). Commercial catches of king and coho salmon were minimal (Appendix Tables 10 and 13).

EGEGIK DISTRICT

Commercial salmon harvests from this district have averaged about 1.2 million fish during the past 20 years (Appendix Table 14). Sockeye salmon normally comprise over 97% of the annual catch and necessarily dominate the management of the fishery. The pre-season outlook called for an inshore harvest of about 800,000 sockeye in excess of a 600,000 fish escapement goal for the Egegik River (Table 1). A commercial harvest of this magnitude is considerably below the long-term district average of 1.1 million (Appendix Table 9). Sockeye runs to this river system have exhibited a stable trend over the past 20 years and have varied significantly from the long-term average only six times during this period.

Although there was a slight increase in the number of set nets registered in this district, overall gear registration declined by 27 units from the previous year (Table 3). A total of 203 units of drift gear were registered to fish in Egegik this season. Resident fishermen still hold a slight margin over the number of non-residents; however, the trend in the past few years has resulted in a decline in the relative number of locals in the traditionally resident fishery.

In anticipation of early season fishing time in the Egegik district there was a significant shift in effort by the beginning of the emergency order period. An influx of effort from adjacent districts occurs during most years since the run normally peaks a few days earlier in the Egegik district. A pre-season survey of available effort this year indicated that as many as 70 additional units of drift gear had intentions to fish Egegik through the last week in June. An actual peak fishing effort of 300 units of gear occurred during a 12-hour period on June 29, and included 30-35 boats that had transferred in from other districts (Table 11).

A price settlement between the industry and a majority of the fishermen in the district wasn't finalized until late in June. As a result of the price

dispute only about half the available effort participated in the fishery until that time. Over 70 fishermen who belong to the local fishery co-op settled prices early enough to take advantage of early fishing periods. Fishermen with other small processors and cash buyers contributed to the remainder of the effort participating in early season openings.

Processing capacity within the district was much greater than in the previous few years (Table 30). Three additional canning lines were made operational for this season, and increased processing capabilities were available on several large freezer ships. A minor portion of the catch was also processed locally and shipped out by smaller companies. The remainder of the catch was transported out of the area and canned at plants in Naknek and in the Nushagak district or hauled aboard brine tenders to canneries outside of Bristol Bay (Table 32).

Minimal fishing effort during the full week prior to the beginning of the emergency order period managed a catch of less than 2,000 sockeye salmon (Table 11). Continuous fishing in the two days immediately preceding the regulatory closure of the district on June 23 produced a catch of only 13,000 sockeye (Table 11).

By June 23 the ultimate strength of the run was not apparent, however, a gradual buildup was occurring within the fishing district with minor escapement into the river (Table 21).

In light of the favorable forecast and the presence of only minor fishing effort a 12-hour opening was announced for June 24 (Table 9). An estimated 80 units of gear caught 13,000 sockeye salmon and revealed that the run had not developed to any significant level. The catch for this period brought the cumulative sockeye harvest to slightly over 26,000 (Table 11).

By June 25 the offshore Port Moller test boat estimated the inshore run of sockeye salmon to Bristol Bay at only about 3.3 million but that it was

still building gradually (Table 5). A delay in normal timing into the inshore districts was suspected due to the effects of a late spring breakup and colder than normal water temperatures. The delayed run seemed to be contradicted by an early showing of fish in the Egegik Lagoon and River and apparent steady buildup of fish through June 26 (Table 21).

After a 36-hour closure a second 12-hour period was announced for June 26. A majority of the fishemen had still not settled prices with the processors by this time so there was only a minimal increase in the effort and catch for this period (Table 11). The catch of only 13,000 sockeye by 135 units of gear suggested a decline in the strength of the run in the district relative to that of the previous period. The fishery remained closed for over 60 hours following the period on June 26 to permit further assessment of run strength.

Test fishing in the river above the commercial district commenced on June 26 to provide additional information on escapement trends (Table 21). Test fishing was also conducted at several locations within the fishing district in order to monitor the distribution and relative strength of the sockeye run at the entrance to the river. Outside test fishing on June 27 produced minimal catches at all locations (Table 7). Inside test catches on June 28 were limited but suggested an increasing number of fish were entering the river (Table 21). The combined aerial survey and inside test fish estimates through June 28 indicated an assured escapement of over 100,000 (Table 21).

With a total sockeye catch of less than 40,000 to date and moderate escapements already in the river, a 12-hour fishing period was permitted on June 29. All fishermen had settled prices by this time so all available effort was on hand for this period. Over 300 units of gear managed a catch of 120,000 sockeye salmon (Table 11). Catch per unit effort was up considerably from the previous period and revealed a significant buildup of fish within the district.

Outside test fishing the following day (June 30) revealed a continued buildup of fish with large catches being made in the southwest corner of the

district (Table 7). Concentrations of fish in this section of the district ordinarily occur during the earliest stages of the run. The inside test boat detected a decline in the escapement rate on June 30 followed by an increasing trend again early on July 1 (Table 21).

An aerial survey on June 30 revealed over 78,000 sockeye in the lagoon with an unknown number still migrating upriver in muddy water. The first escapements above the counting tower occurred on June 30 (Table 18).

The daily passage rate at Port Moller on June 29 was over triple that of any previous day and gave support to the possibility of an inshore run with later than normal timing (Table 5).

With over 30% of the escapement goal apparently in the river by this time, and indications of a continued building run, a fourth 12-hour period was announced for the afternoon of July 1 (Table 9).

Fishing effort was down somewhat as 30 boats had transferred out of the district since the last period. Catch per unit of effort was over double the previous period and an additional 246,000 sockeye brought the cumulative catch to 406,000 (Table 11).

Aerial survey assessment of Egegik River on July 2 revealed over 90,000 fish visible in clear water. Inside test fish escapement estimates for the day were double that of the previous day and was surprisingly high coming immediately after an open period (Table 21). Inclement weather on July 2 precluded a thorough coverage of the district by the outside test boat but a large catch was made in the central part of the district near Red Bluff (Table 7).

With an indicated escapement of over 400,000 from the inside test fish program through July 2, and a building trend continuing within the district, another 12-hour period was announced for the following day (July 3) after a 25-hour closure (Table 9). With fishing effort down only slightly from the previous period, a peak season catch of 290,000 sockeye salmon brought the cumulative catch to 696,000 (Table 11).

Inside test fish catches on the following day estimated a daily escapement of 94,000, and suggested that over 90% of the 600,000 escapement goal was already in the river past the fishery (Table 21). With at least a three day lag time before this main body of fish would be visible in clear water, and with over 100,000 fish already guaranteed in the escapement, it was decided to open the fishery for 12 hours on July 4.

Although fishing effort was down only slightly the catch per unit for July 4 was only about a third that of the previous period on July 3 (Table 11). The additional catch of 107,000 sockeye brought the cumulative catch to 803,000 (Table 21). High winds precluded an accurate aerial survey of the Egegik Lagoon on July 4, while the daily escapement past the counting tower was only 15,000, bringing the total counted escapement to 22,000 (Table 18).

A more thorough assessment of run strength was not possible until July 5 when an aerial survey of the river showed almost double (190,000) the number of fish previously seen in clear water with large schools visible down river into muddy water. The inside test boat estimated an additional daily escapement of 50,000 above the commercial fishery, which suggested that the sockeye escapement goal had been reached (Table 21).

The outside test boat made a complete circuit on July 5 and found a sizeable number of fish still existed within the district (Table 7). The second highest daily index of the season was also reported by the offshore test boat at Port Moller indicating additional strength to the overall inshore run still existed (Table 5).

Except for the reduced catches on July 4 there was no indication that the run was declining significantly in strength. With this support another 12-hour period was announced for July 6 after a 37-hour closure. A slightly larger fishing effort managed a harvest of about 166,000 sockeye salmon (Table 11).

No aerial survey of the river was possible on the following day (July 7) due to adverse weather and tower escapement counts included only an additional 28,000 fish. For the fourth consecutive day the escapement rate dropped past

the inside test boat, although the cumulative estimated escapement was in excess of 670,000 (Table 21).

On July 7 the situation improved when an additional 100,000 fish were counted in clear water in the Egegik Lagoon, and escapement estimates by the inside test fishing program were the second largest to date for the season (Table 21).

In addition to improvement of upriver escapement trends, the outside test boat made a thorough coverage of the district on July 7 and made the largest catches for the season (Table 7). Subsequent outside test fishing on the morning of July 8 verified a continued building trend within the district.

With over 53% of the escapement goal assured (tower plus aerial survey count), an undetermined numbers of fish still moving up out of muddy water, and a steady building trend within the district, a 12-hour fishing period was announced starting late on July 8 (Table 9). Inclement weather and reduced fishing effort contributed to a smaller than expected catch of about 114,000 sockeye salmon (Table 11).

The escapement estimate made from the July 8 inside test fishing catches suggested the largest daily escapement of the season and brought the cumulative test fishing derived escapement estimate to over 1.0 million fish (Table 21). With the escapement goal apparently assured by this time two additional 12-hour periods alternating with 24-hour closures were permitted on July 10 and 11 (Table 11). By July 11 it became apparent from declining test fish escapement rates, lagoon counts and commercial catches that the guaranteed escapement was not materializing as rapidly as would be necessary to achieve the escapement goal. At this point only 84% of the escapement goal was visible in clear water with only small numbers of fish moving out of muddy water below. For seven consecutive days the fishery remained closed and didn't re-open until regular 5 day-per-week fishing resumed on July 19. Only 16,000 fish were added to the

catch during this week (July 19-24) which brought the season catch to 1,305,000 sockeye salmon (Table 11).

With increased processing and tender capacity over last year, short regularly spaced fishing periods, and smaller catches in adjacent districts, fishermen were never placed on limits during the season. The season harvest of over 1.3 million sockeye exceeded the pre-season forecast by 548,000 fish yet was only 200,000 above the 20-year average of 1.1 million for the district (Table 11 and Appendix Table 9). The total sockeye run to the Egegik district amounted to 1.8 million, compared with a forecasted inshore run of 1.4 million and a 20-year average return of 2.0 million (Table 11 and Appendix Table 29).

The final sockeye escapement to the watershed amounted to 509,000 fish and although it was short of the optimum goal of 600,000 it fell within the management range of 5-700,000. This year's escapement fell short of the 20-year average escapement of 836,000 (Appendix Table 29).

Age composition of the sockeye run to Egegik was dominated by 5-year old fish (88%) from the 1971 brood year with only a minor contribution from 4 and 6-year old fish (3% and 9% respectively) (Table 17).

Combined commercial harvests of the other species of salmon historically average only about 30,000 in the Egegik district and are composed predominantly of chums (Appendix Tables 10 through 13). This year's catch of 48,000 chum salmon was the third largest in the past 20 years and double the long-term average annual catch (Appendix Table 11).

UGASHIK DISTRICT

The prospects for limited mid-season fishing time appeared likely in this district for the first time in five years. With the pre-season outlook calling for an inshore run of 689,000 sockeye salmon a minimal harvest of 189,000 fish was expected after escapement requirements were met (Table 1). Salmon production has exhibited a downward trend in the past ten years in this district with the commercial harvest averaging only 177,000 fish. No reversal of this trend appears possible in the next several years.

Registered fishing effort in the Ugashik district was up 62% over the previous year. A total of 51 units of drift gear and 30 units of set gear were registered in Ugashik this season (Table 3). Local fishermen comprise a majority of the effort as they have for some years in this traditionally resident fishery. Numerous local fishermen have registered in other districts in recent years in the face of dim prospects for a normal fishery in their home district.

Processing capacity in the area remains insignificant and most fish caught here this year were either flown out fresh or transported via tenders to other districts for processing (Table 30). A minor number of fish were canned at a small processing plant in Ugashik village (Table 31).

Catches are normally minimal prior to July 1 at Ugashik and what few fish that are caught early are either processed locally or sold to cash buyers outside the district. Because of this situation the price dispute between fishermen and industry that delayed fishing in other districts in Bristol Bay was not a factor at Ugashik.

Since the run normally doesn't peak in the Ugashik district until the second week of July most drift fishermen this year transferred to other districts late in June in anticipation of early fishing time elsewhere in the Bay. A pre-season survey of available effort indicated only about 15-20 units of gear would remain in the district for early fishing. Actual peak effort occurred during a 24-hour period on July 12-13 when an influx of fishermen from other districts increased effort to 65 units of gear (Table 12).

Prior to the start of the emergency order period most fishermen use larger mesh gill nets in an effort to catch king salmon which are generally more available early in the season. As a result fishermen managed a catch of less than 400 sockeye salmon prior to the beginning of the emergency order closure on June 23.

Because the Ugashik River is silt laden for almost 30 miles above its mouth it is difficult to monitor escapements above the commercial district as the run begins to develop after July 1. In the absence of a commercial fishery or test fishing program to aid in assessing run strength, visual counts of escapements in clear water below Ugashik Lake provide the best indication of how the run is developing. With minimal fishing effort available in the district and a small harvest forecasted for this season it was decided that further assessment of run strength could best be accomplished with short regularly spaced fishing periods starting after the regulatory closure of the district on June 23.

Run development was continuously and closely monitored throughout the season with actual fishing time being allowed based on apparent magnitude of the return, run timing and available fishing effort.

Fishing effort remained light until July 10 when catches began tapering off in other districts and some fishermen began transferring to Ugashik. Prior to this date a maximum of some 5-20 drift units and 5-10 set net units participated on a regular basis (Table 12). Six 12-hour fishing periods were allowed between June 25 and July 6 to monitor run development. Sockeye catches were moderate and gradually increasing and when combined with escapement estimates suggested that the run was near the forecasted level.

As catches increased in early July it became more and more difficult for fishermen to dispose of fish since buyers and processors were busy handling large catches in other districts. This further complicated assessment of run strength from CPUE information since most fishermen quit fishing after catching only what they could readily dispose of.

Aerial escapement counts of the Ugashik River and lagoon began on June 25 and eleven subsequent surveys during the next 16 days revealed steadily increasing numbers of fish entering the river, and by July 11 over 300,000 fish were assured in the escapement (Table 22). Considering the abnormally late spring breakup and the cold water temperatures that persisted late in the season, the buildup of fish in the river by July 11 further supported a run at the forecasted level. Cold water usually delays even further this system's later and slower developing run.

The cumulative sockeye catch through July 11 stood at 111,000 and was still short of the forecasted inshore harvest of 189,000 (Table 12). Over 300,000 fish had already passed the counting towers or were visible in clear water down river. Combining these with an unknown number of fish in over 20 miles of muddy water below it appeared that the escapement goal of 500,000 was almost assured. Fair catches in the commercial fishery during the 12-hour period on July 10 suggested that fish were still moving through the district and on into the river (Table 12).

To enable the fleet a chance to harvest fish potentially surplus to escapement needs a 24-hour period was announced for July 12-13. Peak effort for the season managed a catch of 53,000 sockeye salmon and brought the cumulative catch to 164,000 (Table 12).

Inclement weather precluded an accurate aerial survey of the river and lagoon on the following day but there was no significant change in the apparent escapement rate into the river. Large schools of fish were visible in areas as far as 15 miles below the lagoon.

A 12-hour period was announced for July 15 after a 50-hour closure and the resulting catch of 15,000 fish provided the first evidence that the run had significantly dropped off in the district and the lower stretches of the river. At this time it also became evident that the fish had been milling in the river and were actually not moving up above the fishing district as it appeared a few days earlier.

Faced with declining catches and lagging escapements, the fishery remained closed for the duration of the emergency order period.

Catches during 5 days of fishing in the following week (July 19-24) contributed only 6,000 additional fish to the catch (Table 12). The season catch of 186,000 sockeye salmon equaled the pre-season forecast, but was considerably below the 20-year average of 323,000 (Appendix Table 9). The total sockeye run to the Ugashik River amounted to 528,000 compared with a forecasted inshore run of 689,000 and a 20-year average return of 773,000 (Table 1 and Appendix Table 29).

The final sockeye escapement to the Ugashik district amounted to 342,000 fish and was only 68% of the optimum goal of 500,000 (Table 1). Although the final escapement was less than the goal it was the second largest escapement since 1971 and 12% above the recent 10-year average escapement of 269,000 (Appendix Table 29).

Age composition of the sockeye run to Ugashik this season was made up predominantly of 5-year old fish (90%) from the 1971 brood year with only a minor contribution of 4 and 6-year old fish (5% each) (Table 17).

Combined commercial harvests of the other species of salmon normally average less than 21,000. This year's combined catch of 11,000 chum, king, pink and coho salmon fell far short of this long-term average (Appendix Tables 10 through 13).

NUSHAGAK DISTRICT

In Nushagak district the pre-season inshore sockeye salmon forecast was for 2.1 million fish, with a probable harvest of 900,000 after escapement requirements of 1.3 million were met (Table 1). Although the sockeye run was expected to be strong enough to all of this districts' major contributing river systems, it was anticipated that separate openings for the Igushik and/or Nushagak sections might be required to balance catch and escapement to the actual strength of the runs bound for these systems.

Unlike other major districts in Bristol Bay, Nushagak district produces important runs of king and chum salmon, and also harbors a significant even-year pink salmon run. Fishing effort in recent years has been intensified on these "other stocks" to the point where they no longer "take care of themselves". An important part of fishery management effort in this district is directed toward monitoring the developing run of these other species, and assuring that escapements are adequate to sustain the stocks.

Since Nushagak district produces over 70% of Bristol Bay's king salmon harvest, early season management effort is directed toward determining the apparent strength of the incoming king run. The king return in 1976 was not expected to exceed the average harvest of the previous few years (47,000), and "some limitations in fishing time prior to June 23 was expected". Early fishing directed at king salmon has been curtailed very significantly in this district since 1972. Japanese high seas interception of Western Alaska king salmon has increased dramatically, and this factor has probably affected the total run available to the domestic inshore fishery. High seas interceptions of kings averaged 72,000 from 1952-63, and then increased by over 200,000 fish to an average of 288,000 in 1964-75. Maintaining king spawning stocks at the minimally acceptable level has forced a conservative inshore management stature, and fishing time has necessarily been severely limited.

King salmon catches through June 15 prior to the emergency order period amounted to only 12,000 fish, compared with the average of 24,000. Although king catches were below average by June 16, so was fishing effort with only about 120 boats actively participating in the fishery (Table 13). The emergency order period begins in Nushagak district one week earlier than other Bristol Bay districts to give additional control over the early king run. Effective for the first time since 1971, small mesh "red salmon gear" was allowed beginning with the commencement of the emergency order period on June 16. It was anticipated that many skiff fishermen would take advantage of the new regulation and fish earlier than normal, and that the percentage of male jack kings taken with the smaller mesh red nets would increase.

A 24-hour fishing period was announced for June 17-18, and the eventual catch of 18,000 kings brought the cumulative harvest to 30,000 which was even with the long-term average catch by this date (Table 13). With the strong king catches made on June 16-17, it was apparent that a strong run was in progress.

Two additional 12-hour periods on June 22 and 25 produced exceptional chum salmon catches, especially the period on June 25 when 113,000 chums were harvested (Table 13). The period on June 22 also verified that a strong king run was in progress, when over 5,000 kings were taken, primarily with small mesh gear under calm weather conditions (Table 13).

Exceptional subsistence catches of kings from Dillingham area beaches, as well as good subsistence catches upriver in the Lewis Point area prompted the decision for a second fishing period on June 25. Through June 25, king and chum salmon cumulative harvests were 40,000 and 132,000 respectively; while only 19,000 sockeye salmon had been caught, well under the long-term average of 59,000 by this date.

With indications of a good chum salmon run in progress, as demonstrated by: (1) above average catch of 132,000 fish as compared with the long-term average of 53,000 by this date; (2) high chum catch indices at Port Moller;

(3) high percentage (64%) of chums caught within the Nushagak district by the outside test boat on June 27; and (4) the absence of significant sockeye within the district, a decision was announced for a 12-hour period on June 28 (Table 9).

The June 28 period produced a catch of 164,000 chums and 77,000 sockeye, bringing the cumulative season chum catch to 296,000 (over 3½ times higher than the average through June 28), and the sockeye catch to 96,000 (Table 13).

The outside Nushagak test boat made another complete circuit of the district on June 30-July 1, and catch indices continued to show a preponderance of chums present (60%) and no sockeye strength within the district (Table 8). Another 12-hour period was announced for July 2-3 (Table 9) based on: (1) higher than average chum catch at both Port Moller and in Nushagak district; (2) relatively low sockeye catch of 96,000 to date compared with the average of 169,000; (3) preliminary analysis which indicated that only about 20% of the expected catch of early-bound Nuyakuk River sockeye had been harvested from a run which was expected to be a strong producer in 1976 (Table 1); and (4) only 5% of the district sockeye forecast had been accounted for through July 1.

The fishing period on July 2-3 produced a record total catch of 617,000 salmon for a 12-hour period from peak fishing effort of 355 drift and 148 set net units, second only to 663,000 salmon caught in a 24-hour period in 1964. The period catch of 509,000 sockeye salmon brought the cumulative harvest to over 604,000 fish (Table 13).

The outside test boat began another circuit of Nushagak district on July 4, and sockeye catch indices showed very significant strength all the way from Kanakanak Beach near Dillingham to below Ekuk Bluff in Schooner's Channel (Table 8). Through July 4, the Wood River escapement was only 3% (26,000) of the desired goal, and on July 5 General Fishery Announcement No. 1 indicated that although the "daily rate (escapement trend) was picking up" the "large sockeye catch on July 2-3" had "forced a conservative management approach to insure adequate

escapement into Wood River" (Table 9). Further, fishermen were advised that additional fishing time would probably be announced "with very little notice".

By the evening of July 5 a 12-hour fishing period for Igushik section only was announced for July 6-7, based on the first strong evidence of fish in the upper river as indicated by aerial survey, and continuing strong "steady" catches at the new inside Igushik River test fishing site just above the fishery (Table 24).

Aerial survey assessment of sockeye escapement trends into Wood River continued with two early morning surveys on July 6. The first survey, at 5 a.m., under poor survey conditions, indicated the first strong showing in the lower river, and the second survey, at 10 a.m., indicated a minimum of 150,000 sockeye were present in Wood River (Table 23). Concurrent with the strong showing of fish in lower Wood River, the outside test boat made two test drifts off Hansen Point at the mouth of Wood River which confirmed the presence of a large number of fish (Table 8).

With a minimum of 323,000 sockeye past the fishery and 40% of the escapement goal assured, (173,000 past the tower, and 150,000 in lower Wood River) the previously announced Igushik section 12-hour fishing period was superceded by emergency order to allow a district-wide opening for July 6-7 (Table 9). Although the announcement was issued only six hours prior to the opening, all fishing effort was able to participate due to the prior Igushik section announcement, and the Departments' July 5 general announcement to the effect that fishing time might be announced with very little lead time.

The period on July 6-7 produced a 233,000 sockeye catch bringing the cumulative harvest to 837,000, which was equal to the expected harvest by this date (Table 13).

The sockeye escapement of 320,000 into Wood River through July 7 confirmed the estimate made prior to the July 6-7 fishery (Table 18). By July 8 the Wood

River daily escapement trend was beginning to decrease due to the heavy fishery pressure on July 6-7 (Table 18).

Sockeye escapement trends into Wood River were being continuously monitored on a daily basis and the outside Nushagak test boat conducted two additional trips on July 8-9 and July 10-11 to test for additional run strength (Table 8). The first test fishing trip on July 8 gave indications of good numbers of fish inside the fishery at Grassy Island, but fewer fish were indicated as the test boat progressed further to the south (Table 8). On the return leg (flood tide) of the same trip (July 9), heavy catches were made from Ekuk Bluff to as far north as Combine Flats (Table 8). These good catches indicated that a strong surge of fish was on the move into Nushagak district. However, as the Wood River daily escapement trend was low, and only 46% of the escapement goal was accounted for through July 9, it was considered necessary to remain closed in the event that the run had already peaked and was on the decline. Of special concern was the declining runs in the Naknek-Kvichak and Egegik districts from July 6-8, and the knowledge that Nushagak sockeye exhibit a slightly later run timing.

By July 11, with both the Wood River escapement showing considerable improvement (464,000 past the tower through July 10, and a heavy "showing" in the lower river on July 11) (Table 18), and exceptionally strong outside test boat catches from Grassy Island to Ekuk Bluff (Table 8), another 12-hour period was announced for July 11-12.

The sockeye catch for July 11-12 amounted to 104,000 bringing the cumulative harvest to 941,000 (Table 13). With the Wood River escapement over 634,000 through the morning of July 12, and an aerial survey estimate of 30-50,000 in Wood River below the tower, a 24-hour period was announced for July 13-14 (Tables 13 and 23).

After a short closure, Nushagak district was re-opened for a 42-hour fishing period when it became apparent that escapement goals in both Wood and Igushik Rivers were assured (Table 18).

Following a weekend closure on July 17-18, Nushagak district resumed on a 5 day-per-week fishing schedule. Fishing effort estimated at about 320 drift and 122 set net units remained in Nushagak to participate in the expected large pink salmon return. The forecasted Nushagak pink run was expected to produce 3.0 million pink salmon from escapements totaling 586,000 in 1974 (Appendix Table 33).

Through July 17, 48,000 pink salmon were harvested with red and pink gear, and another 509,000 pinks were caught during the following weekly fishing period (July 19-24) bringing the cumulative catch to 557,000, compared with the long-term average of 379,000 by this date (Table 13).

Although the pink salmon harvest was well above the average by July 24, the escapement was lagging badly at the Nuyakuk River counting station where most Nushagak pinks are enumerated. By July 24 only 13,000 pinks or 2% of the escapement goal of 800,000 had passed the counting station (Table 19). Aerial surveys are employed to assess escapement in Nushagak River below the Nuyakuk River counting station due to the 8-10 day delay between the commercial fishery and the Nuyakuk tower. Aerial survey assessment of Nushagak River on July 25 demonstrated that most of the pink salmon strength was in the lower river (as expected), but that it was fairly weak and spotty at best (Table 25). When the total river estimate of 100-200,000 pinks was compared with run timing (at the peak) and past escapement trends, it was determined that a closure of the fishery was necessary (Table 9). Nushagak fishermen had been put on notice as early as July 23 that "the current pink salmon escapement rate.... was well below that needed to achieve adequate pink escapement", and that "additional closed time over the regular 48-hour weekend closure can be anticipated" (Table 9). The fishery was subsequently closed for an additional 51 hours over the regular weekend closure (Table 9).

Another aerial survey of Nushagak River on July 27 indicated a total river escapement of 300-400,000 pinks (Table 25). The fishery was allowed to

re-open on July 28-29 for 24 hours to test the remaining run strength. When it became apparent that the pink catch (105,000) and CPUE was down from previous periods, the fishery was closed for the balance of the week (Table 13). The additional closed fishing time allowed the Nuyakuk River pink escapement to reach 794,000, right at the optimum goal of 800,000 (Table 19). The entire district escapement totaled 861,000 pink salmon, compared with the long-term average of 936,000 (Appendix Table 33).

The commercial catch of 741,000 pinks was below the even-year average district catch of 946,000, and the total inshore run of 1.6 million was also below the average inshore run of 1.9 million (Appendix Table 33).

Although individual period catches of salmon were large in this district, and on one occasion approached a record harvest, industry production capacity was able to handle and process the harvest without undue problems, and most fishermen were not placed on limits at any time during the season. One major company placed its fishermen on limits for the period on July 6-7, but total catches were not affected. The widely spaced fishing periods during the peak of the run enabled the industry to avoid a glut of salmon at any one time.

In-season manipulations of fishing time in Nushagak district resulted in near optimum sockeye salmon escapements in all river systems: Wood: - 817,000 escapement with a goal of 800,000 and 20-year average of 892,000; Igushik - 186,000 with a goal of 150,000 and 20-year average of 239,000; Nuyakuk - 425,000 with a goal of 250,000 and average escapement of 169,000; Nushagak-Mulchatna - 45,000 with a goal of 40,000 and average escapement of 32,000; and Snake - 13,000 with a goal of 30,000 and average escapement of 17,000 (Table 1 and Appendix Table 30). Over-all the Nushagak district escapement of 1.5 million sockeye in 1976 was 11% larger than the 20-year average of 1.3 million (Appendix Table 30).

Nuyakuk River system produced another record sockeye run in 1976, surpassing the previous record total run in 1975 of 769,000. Total inshore run to the

Nuyakuk system amounted to 775,000, with over 425,000 in the escapement (Table 2). The large escapements into Nuyakuk in 1975 (670,000) and 1976 and eventual returns will help to better define optimum escapement requirements for this system, which has shown increasing returns with increasing escapements (Appendix Table 30).

The total sockeye salmon harvest of 1.2 million was 31% higher than the 20-year average of 934,000, while the total sockeye run to all systems of Nushagak district totaled 2.7 million compared with the pre-season inshore forecast of 2.1 million and the 20-year average run of 2.3 million (Table 1 and Appendix Table 30).

Age composition of the sockeye run to this district was as forecast: 32% 4-year old fish from the 1972 brood year escapement, 64% 5-year old fish from the 1971 brood year, and 4% 6-year old fish from 1970 (Table 17).

The commercial harvest of salmon species in 1976 was substantially higher than the long-term averages for sockeye and chums, and below the long-term average for king, pink and coho salmon (Appendix Tables 9-13). Most noteworthy was the chum salmon catch of 837,000, which was over 2½ times higher than the 20-year average catch, and the largest catch since 1916 when 1.2 million were caught (Appendix Table 11).

Although the king salmon catch was below the long-term average, the escapement of kings was the largest ever observed, with over 34,000 fish enumerated by aerial survey assessment methods (Table 27). The entire Nushagak district king escapement was estimated to equal about 100,000 fish (Table 27).

The district chum salmon escapement was also large and was estimated at about 500,000 fish after analysis of all aerial survey data.

TOGIAK DISTRICT

The forecasted sockeye salmon run of 273,000 to the Togiak district in 1976 was in excess of the escapement requirements of 100,000 fish (Table 1). In-season management of this system's sockeye run is conducted differently than that of the other districts in Bristol Bay. At Togiak, fishing periods are set in advance and adjusted as required during the course of the salmon season to balance catch with needed escapement. The slow, gradual and extended nature of the sockeye run, as well as limited fishing effort and processing capabilities, all permit the fishery to develop at a slower, more controlled rate which negates the need to manage the fishery on a day-to-day basis by emergency order. Fishing periods are usually open on a 4 to 5 day-per-week basis and are adjusted in accordance with in-season run strength.

Processing capabilities are limited at Togiak, and 1976 saw only seven companies involved in salmon production (Table 30). Only two companies are based in the Togiak area (Kachemak Seafoods and Togiak Fisheries, Inc.) with the latter's two canning lines(1-lb. tall and ½-lb. flat) the only canning operation in the entire area. All other companies either tendered or flew fish out of the Togiak area for processing elsewhere. As a result of the limited daily production capacity, fishermen in this district were frequently on restrictive daily limits in 1976, and several companies were required to suspend all buying operations for varying periods of time due to heavy fishing which exceeded daily processing capacities.

The sockeye salmon run began to show considerable strength by late June with individual catches running 500-700 fish per delivery. The cumulative sockeye catch through July 3 of 52,000 was well above the long-term average of 21,000 by this date (Table 14).

Sockeye catches continued to average over 500 fish per delivery the following week (July 5-10) forcing two of the major operators to suspend fishing time. The weekly sockeye harvest amounted to 90,000, bringing the

cumulative for the season to 142,000, over twice the average catch of 64,000 by this date (Table 14).

Aerial survey assessment of the Togiak River sockeye escapement began on July 6. By this date the total sockeye escapement was minimal and due to the large catch and low apparent escapement, a partial closure of Togiak section for the following week was indicated (Table 26).

By July 11, with a commercial sockeye catch of 142,000 (Table 14) and only 10% (10,000 fish) of the escapement accounted for and only "fair" indications of fish in Togiak River on July 9 (Table 26), the regular 3-day standard weekend closure was extended 24 hours by emergency order (Table 9).

Further aerial survey assessment of Togiak River sockeye escapement on July 12 showed that a minimum of 25,000 and perhaps as many as 43,000 sockeye had moved into the river (Table 26). With over 65% of the escapement goal assured through July 12 (16,000 past the tower and "at least" 45-50,000 below the tower in Togiak River), the previously announced 24-hour extended weekend closure was superceded by emergency order and reduced to a 12-hour closure (Table 9).

Heavy fishing continued the week of July 12-17 with 61,000 additional sockeye caught, bringing the cumulative catch to 203,000 (Table 14). With catches averaging 800-1,000 per delivery, one major processor placed a 250 fish daily limit on their fishermen. Some of the over-limit fish were taken by large brine tenders and shipped out of the Togiak area for processing, but the total fish harvest for the week of July 12-17 was significantly reduced due to catch and processing limitations.

By July 19 the sockeye escapement past Togiak tower had reached 69,000 with another 19,000 fish in the river below the tower (Table 26). With 88% of the sockeye escapement goal accounted for through July 19, fishing time was extended 48 hours beyond the regular 4-day weekly fishing schedule (Table 9).

Fishing time was also extended the following week when sockeye escapement goals were assured.

The total season sockeye salmon harvest of 299,000 was 104% higher than the 20-year average of 147,000 and a record high catch for this district (Appendix Table 9). The total inshore sockeye run (catch and escapement) of 500,000, which was a record high return, was 83% higher than both the inshore pre-season forecast of 273,000 and the 20-year average run of 275,000 (Appendix Table 31).

The final sockeye escapement to Togiak River was 158,000, and the district wide escapement amounted to 201,000, well above the 20-year average of 128,000 (Appendix Table 31). However, like the sockeye stocks of the Nuyakuk River system of the Nushagak district, Togiak River also exhibits an increasing return with increasing escapements, and the optimum escapement has not been entirely defined.

Extensive aerial surveys are conducted on an annual basis in the Togiak district to estimate escapement of king and chum salmon. In 1976, the district king escapement was estimated to total about 12,000 fish, while the chum escapement estimate of 392,000 was the largest on record since the mid-1960's when adequate escapement records were first available.

Age composition of the sockeye run to Togiak was dominated by 5-year old fish (71%) from the 1971 brood year escapement, with smaller contributions from 4 (18%) and 6 (11%)-year old brood stocks (Table 17).

Commercial catches of other species varied: kings - 30,000 compared to the 20-year average of 13,000; chums - 152,000 compared with an average of 115,000; pinks - 28,000 compared with an even-year average of 8,000; and cohos - 13,000 compared to the recent 10-year average of 11,000 (Appendix Tables 10-13).

OTHER FISHERIES

HERRING FISHERY

Since its inception in 1967, Bristol Bay's commercial fishery on Pacific herring and herring roe-on-kelp, centered in the Togiak district, has failed to develop into anything more than a small scale operation. Annual variations in the abundance of fish along with adverse weather conditions and the general logistical difficulties of operating in the area have discouraged large scale exploitation of these stocks.

In 1976, pre-season expectations for a significant increase of both the herring sac roe and roe-on-kelp fishery did not materialize as only 5 of 11 prospective fishery operators participated in the fishery (Table 30).

Department aerial surveillance and monitoring of herring abundance was greatly increased with funds provided by the Outer Continental Shelf Environmental Assessment Program. The increased aerial surveillance allowed the Department to document 734 schools of herring (and capelin) on eight separate survey flights from May 20 to June 12. The relative abundance of herring observed in 1976 was the largest since aerial observations were initiated in 1967.

Although the herring sac roe fishery did not materialize, fishermen participating in the roe-on-kelp fishery harvested a record of 296,000 pounds of kelp worth about $127,000 to the 49 participating fishermen (Table 29). Again the majority of the rockweed kelp (Fucus furcatus) was harvested primarily from in and around Herring (Metervik) Bay. Previous year kelp harvests have averaged 85,000 pounds since inception of the fishery in 1968 (Appendix Table 36).

As interest and market conditions improve and fishermen develop expertise in the Togiak area, this fishery has the potential for future development. Of particular interest (and concern) to the Department, especially in light of recent increasing harvests, is how well the kelp beds now sustaining the roe-on-kelp fishery can revegetate each year.

SUBSISTENCE FISHERY

Residents of the Bristol Bay watershed have historically caught large numbers of salmon and other freshwater fish species for subsistence or personal use. Dog team travel and use has been largely replaced by modern snow machines, but the expected decrease in fish requirements to feed dogs has not occurred. Subsistence catches of salmon show a high sustained level in recent years (Appendix Table 35). In all probability, the increase in population and better documentation of subsistence harvest levels has suggested an over-all increase of fish taken for personal use.

Salmon subsistence catches in Bristol Bay generally approach a season total of between 100 and 200,000 fish, and since 1963 has averaged 137,000 (Appendix Table 35). In 1976 catch records by village area indicate a catch of 146,000 salmon were taken for personal use by 716 permit holders (Table 28).

The winter subsistence fishery on freshwater species such as pike, whitefish, suckers, smelt, char and Dolly Varden has not been investigated or monitored due to shortage of funds and personnel and higher priority of other salmon oriented programs. In selected village areas these catches are known to be substantial, and within the limitations listed above, data on freshwater specie catches will be collected on a as available and/or as needed basis.

MISCELLANEOUS

PRODUCTION STATISTICS

Twelve companies operating 34 of 40 available canning lines totaled a salmon case pack in 1976 of over 543,000 cases (48-1 lb. talls) which was one of the best packs put up in Bristol Bay since the early 1970's, and was just below the 20-year average case pack for all species of 579,000 (Appendix Table 16). The case pack for all species in 1976 was higher than previous recent years, especially for chum salmon, which was five times higher than previous year case packs (Appendix Table 16).

In 1976, about 900,000 salmon were transported out of Bristol Bay by eight companies for processing in other areas (Table 32). These salmon exports would be equal to over 76,000 cases of salmon provided all were canned.

Production levels of fresh, frozen and cured salmon continued to increase in 1976 as market conditions improved in this area. Over 3.2 million pounds of salmon, the highest since 1970, were produced in 1976 as demands for fresh and frozen products continued to increase (Appendix Table 17).

Salmon roe production has increased dramatically since its first production year in 1966. In 1976, 1.5 million pounds of salmon roe worth 5.3 million dollars were processed at 15 shore-based canneries and floaters (Table 33). Over-all, the 1976 production was 53% higher than the 10-year average of 982,000 pounds (Appendix Table 26).

ECONOMIC VALUE

Appendix Tables 20 through 23 give the entire economic and price structure picture for Bristol Bay. Substantially higher fish prices were paid Bristol Bay fishermen over prices in 1975. Increases ranged from a low of 5.6% increase for sockeye for WACMA fishermen to a high of 77.8% increase for chums caught by AIFMA fishermen. Over-all, the two major fishing associations representing most fishermen in Bristol Bay, received price increases over 1975 prices that averaged 53% for AIFMA fishermen and 12% for WACMA fishermen (Appendix Table 20). The large

increases by the AIFMA association brought the two groups into rough parity with each other, as WACMA registered significant price gains in 1975, while AIFMA did not.

The higher prices paid was revealed in the total value paid to fishermen for fish caught in 1976. Over 21.9 million dollars was paid out to fishermen (exvessel value) compared to the average of 12.8 million dollars since 1960 (Appendix Table 21).

The estimated wholesale value of the total case pack of fish canned in Bristol Bay in 1976 was 41.9 million dollars, compared with the long-term average of 23.9 million (Appendix Table 22). When the value of fish shipped out of Bristol Bay for processing is totaled with the Bay case pack value, as well as estimates of the value of all fresh, frozen and cured production, salmon roe, and herring products, the total wholesale value of all fishery products for Bristol Bay in 1976 exceeds 57 million dollars (Appendix Table 23).

AVERAGE WEIGHT

Average round weight of the commercial catch by district and species continues to be derived from two different data sources.

Salmon of all species are sampled from the commercial catch in varying locations at pre-determined time periods by Department representatives to give average round weight by major age class. This weight data gives a general indication of over-all average weight, but is used primarily to show weight by major age class (Appendix Table 24).

Weight records as maintained by individual companies operating in Bristol Bay is summarized and presented in Appendix Table 25. These average weight records by district and species are the best representation of average round weight for salmon caught in Bristol Bay.

In 1976, average round weight of salmon caught in the commercial fishery varied by species and district as summarized and shown below from processor records:

Average Round Weight

District	Sockeye	King	Chum	Pink	Coho
Naknek/Kvichak	5.8	27.6	5.9	3.7	5.5
Egegik	5.9	18.6	5.8	3.8	6.9
Ugashik	6.2	13.5	-	-	-
Nushagak	6.6	18.7	6.9	3.3	6.0
Togiak	7.5	12.1	7.1	4.1	8.3
Average	6.1	17.0	6.8	3.4	7.6

Higher average weight of sockeye salmon in Nushagak and Togiak districts in 1976 was due to the preponderance of larger 3-ocean fish in these two districts (58% and 73% respectively), while Naknek-Kvichak, Egegik and Ugashik district sockeye catches were predominantly smaller 2-ocean fish (70%, 86% and 58% respectively) (Table 17 and Appendix Table 25).

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TABLES

TABLE 1. Sockeye salmon inshore run by system compared with the pre-season inshore forecast, escapement goals and forecasted inshore harvest, Bristol Bay, 1976.[1/]

District and River System	Inshore Forecast			Escapement				Inshore Harvest		
	Forecast[2/]	Actual	Run/Fore.	Goal	Range	Actual[3/]	Esc/Goal	Forecast	Actual[3/]	Harv./Fore.
NAKNEK-KVICHAK DISTRICT:										
Kvichak River	4,593	3,011	.66	2,000	1,500-2,500	1,965	.98	2,593	1,045	.40
Branch River[4/]	221	110	.50	185	150- 220	82	.44	36	29	.81
Naknek River	1,883	2,824	1.50	800	700- 900	1,321	1.65	1,083	1,503	1.39
Totals	6,697	5,945	.89	2,985	2,350-3,620	3,368	1.13	3,712	2,577	.69
EGEGIK DISTRICT	1,357	1,814	1.34	600	500- 700	509	.85	757	1,305	1.72
UGASHIK DISTRICT[5/]	689	528	.77	500	400- 600	342	.68	189	186	.98
NUSHAGAK DISTRICT:										
Wood River	1,205	1,462	1.21	800	600-1,000	817	1.02	405	645	1.59
Igushik River	324	368	1.14	150	100- 200	186	1.24	174	182	1.05
Nuyakuk River[4/]	506	775	1.53	250	200- 300	425	1.70	256	349	1.36
Nushagak-Mul. Sys.[4/]	80	84	1.05	40	20- 60	45	1.13	40	39	.98
Snake River[4/]	14	23	1.64	30	10- 50	13	.43	0	10	-
Totals	2,129	2,712	1.27	1,270	930-1,610	1,486	1.17	875	1,226	1.40
TOGIAK DISTRICT	273	500	1.83	100	80- 120	201	2.01	173	299	1.73
TOTAL BRISTOL BAY	11,145	11,499	1.03	5,455	4,260-6,650	5,906	1.08	5,706	5,593	.98

1/ All figures in thousands of fish. Due to rounding, some totals in this table may not agree with data presented in Table 2.
2/ Final Bristol Bay sockeye salmon forecast of inshore run for 1976.
3/ Escapement data is final, while catch data is preliminary.
4/ These systems cannot be managed separately from the major system in the district. Consequently, the harvest rates are merely the harvest rates anticipated for the major system in the district; the corresponding escapement goals do not necessarily coincide with the escapement levels which would be achieved if these systems could be managed independently.
5/ Excluding Mother Goose system sockeye salmon run.

TABLE 2. Sockeye salmon catch and escapement, Bristol Bay, 1976.1/

District and River System	Catch	Escapement	Total Run
NAKNEK-KVICHAK DISTRICT			
Kvichak River	1,045,291	1,965,282	3,010,573
Branch River	28,675	81,822	110,497
Naknek River	1,503,325	1,320,750	2,824,075
Totals	2,577,291	3,367,854	5,945,145
EGEGIK DISTRICT	1,304,596	509,160	1,813,756
UGASHIK DISTRICT	185,812	341,808	527,620
NUSHAGAK DISTRICT			
Wood River	644,801	817,008	1,461,809
Igushik River	182,184	186,120	368,304
Nuyakuk River	349,314	425,220	774,534
Nushagak-Mul. Sys.	39,084	45,200	84,284
Snake River	10,443	12,728	23,171
Totals	1,225,826	1,486,276	2,712,102
TOGIAK DISTRICT			
Togiak Lake		158,190	
Togiak River		15,000	
Togiak Tributaries		16,200	
Kulukak System		11,200	
Totals	299,367	200,590	499,957
TOTAL BRISTOL BAY	5,592,892	5,905,688	11,498,580

1/ Final escapement data, however inshore catch is preliminary and apportionment of the inshore catch by river system to the Naknek-Kvichak and Nushagak district is preliminary.

TABLE 3. Gear registration by district, type of gear and residency, Bristol Bay, 1976.1/

District	Type of Gear			
	Drift	Set	Total	(Percent)
NAKNEK-KVICHAK				
Resident	245	231	476	(50)
Non-resident	441	40	481	(50)
Totals	686	271	957	
EGEGIK				
Resident	90	74	164	(51)
Non-resident	113	45	158	(49)
Totals	203	119	322	
UGASHIK				
Resident	43	27	70	(86)
Non-resident	8	3	11	(14)
Totals	51	30	81	
NUSHAGAK				
Resident	375	189	564	(82)
Non-resident	104	17	121	(18)
Totals	479	206	685	
TOGIAK				
Resident	97	32	129	(99)
Non-resident	1	0	1	(1)
Totals	98	32	130	
UNKNOWN				
Resident	0	1	1	(100)
Non-resident	0	0	0	(0)
Totals	0	1	1	
BRISTOL BAY				
Resident	850	554	1,404	(65)
Non-resident	667	105	772	(35)
Totals	1,517	659	2,176	

1/ Does not incorporate district transfers.

TABLE 4. Vessel registration by district, keel length and residency, Bristol Bay, 1976.

District	Keel Length To 25 ft.	26-29 ft.	30-32 ft.	Total
NAKNEK-KVICHAK				
Resident	90	59	159	308
Non-resident	19	63	370	452
Totals	109	122	529	760
EGEGIK				
Resident	60	19	40	119
Non-resident	25	17	76	118
Totals	85	36	116	237
UGASHIK				
Resident	15	10	18	43
Non-resident	3	4	3	10
Totals	18	14	21	53
NUSHAGAK				
Resident	149	64	197	410
Non-resident	26	13	62	101
Totals	175	77	259	511
TOGIAK				
Resident	100	5	1	106
Non-resident	1	0	0	1
Totals	101	5	1	107
UNKNOWN				
Resident	1	0	0	1
Non-resident	0	0	0	0
Totals	1	0	0	1
BRISTOL BAY				
Resident	415	157	415	987
Non-resident	74	97	511	682
Totals	489	254	926	1,669

TABLE 5. Daily catch indices and estimated inshore run of sockeye and chum salmon based on offshore test fishing at Port Moller, Bristol Bay, 1976.

Date	Minutes Fished	Sockeye Salmon Catch	Sockeye Salmon Adjusted Index[1]	Sockeye Salmon Cumulative Index	Sockeye Salmon Cum. Passage Estimate[2]	Chum Salmon Catch	Chum Salmon Adjusted Index[1]	Chum Salmon Cumulative Index	Chum Salmon Cum. Passage Estimate[2]
6/12	373	0	0	0	0	12	5.6	5.6	54
13	317	4	1.9	1.9	48	5	2.4	8.0	77
14	366	6	2.8	4.7	118	9	4.2	12.2	117
15	252	6	3.0	7.7	193	13	6.4	18.6	178
16	0	-	(1.5)	9.2	230	0	(3.2)	21.8	209
17	295	0	0	9.2	230	0	0	21.8	209
18	310	3	1.5	10.7	268	5	2.5	24.3	233
19	298	31	16.4	27.1	678	18	10.8	35.1	337
20	299	8	3.9	31.0	775	4	1.9	37.0	355
21	315	49	26.7	57.7	1,443	18	9.0	46.0	441
22	301	21	10.0	67.7	1,693	14	6.8	52.8	506
23	332	36	20.8	88.5	2,213	9	6.0	58.8	564
24	323	50	23.2	111.7	2,793	12	5.7	64.5	619
25	301	29	18.9	130.6	3,265	16	9.2	73.7	707
26	326	75	33.2	163.8	4,095	51	23.5	97.2	933
27	303	28	19.2	183.0	4,575	27	16.0	113.2	1,087
28	318	67	32.1	215.1	5,378	12	5.6	118.8	1,141
29	314	223	108.7	323.8	8,095	26	14.8	133.6	1,283
30	325	131	57.3	381.1	9,528	37	16.5	150.1	1,441
7/ 1	303	56	29.7	410.8	10,270	15	8.2	158.3	1,520
2	306	38	18.7	429.5	10,738	21	10.5	168.8	1,621
3	301	38	23.1	452.6	11,315	19	10.0	178.8	1,717
4	297	101	49.0	501.6	12,540	5	2.4	181.2	1,740
5	292	124	70.1	571.7	14,293	14	8.6	189.8	1,823
6	312	122	58.2	629.9	15,748	9	4.3	194.1	1,864
7	297	42	26.3	656.2	16,405	18	9.9	204.0	1,959
8	299	65	32.4	688.6	17,215	20	9.8	213.8	2,053
Totals	8,075	1,353	688.6	688.6	17,215	409	213.8	213.8	2,053

1/ Indices expressed in fish/100 fathom hours and includes interpolations for missed days (in brackets) and stations.

2/ Estimated passage expressed in thousands of fish and is the product of the daily adjusted indices and the past inshore run/offshore index ratio of 25 for sockeyes and 9.6 for chums.

TABLE 6. Summary of outside sockeye salmon test fishing indices in the Naknek-Kvichak district by index area and date, Bristol Bay, 1976.[1/]

Index Area	Date 6/28	7/1	7/2	7/4	7/7	7/8	7/9
Naknek River (1)	0	17	296	112	143	3	936
Middle Naknek (2)	0		290	38[2/]		500	691
Johnston Hills (3)	0	21	583	320		79	117
Low Point Onshore (4)		5	530	76		426	794
Low Point Offshore (5)				198			
Middle Channel (6)		34[2/]	45		0	18	
Ship's Anchorage (7)		21			184	93[2/]	55
Pederson Point (8)		41			0	171	711
Graveyard (9)				109	51		
Salmon Flats (10)			8[2/]				
Albert's Channel (11)			296[3/]	13			
Gravel Spit (12)			490	18	0	0	
Half Moon Bay (13)				19[2/]	0	0	
Deadman Sands (14)				64[2/]	6	10[3/]	
Low Point/Middle Bluff (15)		54					
Middle Bluff (16)		38				761	1,867

1/ All indices expressed in number of fish/100 fathom hours to the nearest full index point.
2/ Average of two consecutive drifts in same area.
3/ Average of three consecutive drifts in same area.

TABLE 7. Summary of outside sockeye salmon test fishing indices in the Egegik district by index area and date, Bristol Bay, 1976.1/

Index Area	Date 6/27	6/30	7/2	7/5	7/7	7/8
Middle Bluff (1)						
Chichagof (9)	34				1,567	1,586
N.W. Marker (2)		85		229	206	
Middle Marker (3)	23				375	
S.W. Marker (4)	23					
South Marker (5)		563				
Goose Point (6)						
Bishops Creek (7)		165			461	2,170
Red Bluff (8)		868	1,104	1,505	2,469	
Coffee Point (10)				341	581	

1/ All indices expressed in fish/100 fathom hours to the nearest full index point.

TABLE 8. Summary of outside sockeye salmon test fishing indices in the Nushagak district by index area and date, Bristol Bay, 1976.[1]

Index Area	Date									
	6/27	6/30	7/1	7/4	7/5	7/6	7/8	7/9	7/10	7/11
Wood River						1,992[2]				
Kanakanak Beach	0	0		529			33			
Grass Island	0	0		1,701	2,900	160	1,650	960	154	7,160
Nushagak Point	0			1,020	0		9			
Combine Flats	10	4[2]						2,628		2,631[2]
Clarks Point				1,037[2]			160[2]	3,600	19,800[5]	
Ekuk Bluff	86[3]	0[2]	0	3,497			80	6,560	1,789	1,359[2]
Schooner Channel, N.W.	45	4		728[2]	0[2]		0		25	
Schooner Channel, S.E.		0[2]			3,360					
Ships Channel, N.W.	20	0	120				0	157	38	
Ships Channel, S.E.		7	0		0				16	0
Middle Channel, N.W.		78					11		127	
Middle Channel, S.E.		2[4]			20[3]		448[2]		22[2]	22
West Channel, N.W.		94								
West Channel, S.E.		0					220		28	0
Dead Man's Spit							360			
Nichols Spit										

1 All indices expressed in number of fish/100 fathom hours to the nearest full index point.
2/ Average of two consecutive drifts in the same area.
3 Average of three consecutive drifts in the same area.
4/ Average of four consecutive drifts in the same area.
5/ One minute set with 10 fathoms of gear.

TABLE 9. Emergency order fishing periods and general announcements by district, Bristol Bay, 1976. 1/

Emergency Order Number	Date and Time	Hours Open
NAKNEK-KVICHAK DISTRICT		
4	June 25 9 am - June 25 9 pm	12
7	June 27 11 am - June 27 11 pm	12
9	June 29 12 N - June 29 12 MN	12
14	July 5 4 am - July 5 4 pm	12
17	July 6 5 am - July 6 5 pm	12
Naknek Section only		
12	July 3 2 am - July 3 2 pm	12
18	July 6 5 pm - July 7 5 am	12
21	July 10 9 am - July 11 9 am	24
22	July 11 9 am - July 17 9 am	6 days 2/
Kvichak Section only		
22	July 11 10 am - July 11 10 pm	12
24	July 11 10 pm - July 17 9 am	5 days 2/ 11 hrs.
EGEGIK DISTRICT		
4	June 24 7 am - June 24 7 pm	12
6	June 26 8 am - June 26 8 pm	12
9	June 29 11 am - June 29 11 pm	12
10	July 1 1 pm - July 2 1 am	12
12	July 3 2 am - July 3 2 pm	12
13	July 4 3 am - July 4 3 pm	12
16	July 6 4 am - July 6 4 pm	12
20	July 8 7 pm - July 9 7 am	12
21	July 10 8 am - July 10 8 pm	12
22	July 11 9 am - July 11 9 pm	12
UGASHIK DISTRICT		
4	June 25 9 am - June 25 9 pm	12
7	June 27 9 am - June 27 9 pm	12
9	June 29 11 am - June 29 11 pm	12
10	July 1 12 N - July 1 12 MN	12
12	July 3 2 pm - July 4 2 am	12
15	July 6 4 am - July 6 4 pm	12
19	July 8 6 am - July 8 6 pm	12
21	July 10 8 am - July 10 8 pm	12
25	July 12 10 am - July 13 10 am	24
27	July 15 12 N - July 15 12 MN	12
NUSHAGAK DISTRICT		
2	June 17 5 pm - June 18 5 pm	24
3	June 22 8 am - June 22 8 pm	12
5	June 25 10 am - June 25 10 pm	12
8	June 28 11 am - June 28 11 pm	12
11	July 2 4 pm - July 3 4 am	12
18	July 6 6 pm - July 7 6 am	12
23	July 11 10 pm - July 12 10 am	12
26	July 13 1 pm - July 14 1 pm	24
27	July 15 3 pm - July 17 9 am	42

continued

TABLE 9. (continued)

Emergency Order Number	Date and Time	Hours Open
NUSHAGAK DISTRICT (continued)		
29	July 26 9 am - July 28 12 N	51[3/]
30	July 29 12 N - July 31 9 am	45[3/]
Igushik Section only		
17	July 6 6 pm - July 7 6 am	12
TOGIAK DISTRICT[4/]		
Togiak River and Kulukak Sections only		
25	July 12 9 am - July 13 9 am	24[3/]
26	July 12 9 pm - July 16 9 am	3-1/2 days
Togiak River Section only		
28	July 23 9 am - July 25 9 am	48
31	July 30 9 am - July 31 9 pm	36

General Announcement Number	Date	Announcement
1	July 5	"The Wood River sockeye escapement is still well below that necessary to allow additional fishing time. Total escapement at Wood River is 120,000 through 6 p.m. today. The daily rate is picking up, and if it continues fishing in the Nushagak section should be possible in the very near future. The large sockeye catch on July 2 amounted to over 500,000 fish, and this large catch has forced a conservative management approach to insure adequate escapement in Wood River. When the Nushagak section announcement comes, it will probably be with very little notice - so please keep yourself posted on the status of the run."
2	July 8	"Overall, the inshore sockeye salmon run to the Bay is not developing as forecasted, especially in the Kvichak and Wood River systems. Our best estimate of total fish to date is 6.0 million catch plus escapement. Total catch to date is 3.3 million in all districts, while the actual escapement is 2.1 million, with an additional million estimated. In the Naknek-Kvichak district, there are no encouraging signs of fish entering the district at this time. The Kvichak River is more than 1.0 million fish short of the escapement goal, with only 870,000 fish accounted for through July 7. The daily escapement rate is dropping rapidly in the Kvichak River, and the Nakeen inside test boat catches are low. The Naknek River escapement is

continued

TABLE 9. (continued)

General Announcement Number	Date	Announcement
		almost at the lower range of the escapement goal with 695,000 fish accounted for through July 7. The Naknek River escapement rate has also dropped to insignificant numbers of fish. The total catch for the Naknek-Kvichak district has amounted to 1.3 million. No fishing time is anticipated in the Naknek-Kvichak district in the immediate future unless more fish begin to show in the Kvichak and Naknek systems and the escapement shows considerable improvement in the Kvichak River. At Egegik, the district catch is over 1.0 million and the escapement is still being assessed. Our best estimate at present is that the escapement is in the 300-400,000 range. Inside and outside test boat catches have resumed at a strong rate; however, additional fishing time will be delayed until the lagoon, and especially the river escapement, can be determined. At Ugashik, the run appears strong, however limited effort to date has precluded an accurate estimate of the run magnitude. The 12-hour period announced for today should help to assess run strength. At Nushagak, the current catch of 840,000 sockeye is approaching the pre-season forecasted harvest. However, the Wood River escapement of 320,000 through July 7, is well below the escapement goal and the rate of fish movement into the river has dropped significantly. The Nushagak district will remain closed until the escapement improves. The Igushik fishery will also remain closed until the escapement improves in that system. At Togiak, the commercial harvest has already topped 100,000 sockeye, well ahead of the average catch by this date. The river escapement is poor and additional closed time over the regular weekend closure is anticipated. The Department will have test boats out daily to check for fish entering the various districts. If any changes occur, we will notify persons concerned over 2430 and 3230 frequencies. Daily announcements will be made concerning the status of the run at 12:00 Noon for the next few days."
3	July 9	"Naknek-Kvichak - There is essentially no change in the rate of escapement into Kvichak River. An 11 a.m. aerial survey of the Kvichak River showed few fish in the river, and no change in the lower river from yesterday's survey. The Nakeen test index catch on July 8 and 9 were low, indicating no strength in the upper district. Kvichak River escapement is now 951,000, yesterday's daily was 64,000, down from 252,000 the previous day. This mornings 6 a.m. count was only 7,000 fish."

continued

TABLE 9. (continued)

General Announcement Number	Date	Announcement
3	July 9 (cont.)	"The Naknek River escapement now stands at 751,000, yesterday's daily escapement was 57,000, up from the previous days count of 28,000. Provided the escapement rate into the Naknek River continues at the current rate, fishing time is imminent in the Naknek section." "Outside test boat catches in the Naknek-Kvichak district have been spotty. Test catches by two (2) boats from 10 a.m. yesterday to late last night show no fish on the West side. Moderate catches were made in the Low Point and Middle Bluff area, indicating that some fish are present in this area. At this time there are no anticipated fishing periods scheduled for the Kvichak section." "Egegik - The last 12-hour period at Egegik (July 8-9) provided catches of about 120,000 fish, which was similar to catches on July 6. Additional fishing time will depend on further assessment of lagoon and river escapement. At this time, 134,000 fish have passed the counting station, with a current low to moderate rate past the tower." "Ugashik - Yesterday's fishing period (12 hours on July 8) provided a catch of 22,000 fish and the sockeye run in this system looks good." "Nushagak - The Wood River escapement reached 27,000 yesterday and now totals 347,000. Today's 6 a.m. count is only 9,000, which was similar to yesterday. An aerial survey of Wood River at 10 a.m. today showed 7,000 fish in the river. However, test boat catches indicate a moderate number of fish at the sockeye salmon boundary line in the West and Middle Channel areas, as well as very good numbers of fish in the Ekuk Bluff to Grassy Island area." "The Igushik River escapement reached 14,000 yesterday for a total of 40,000. Today's 6 a.m. count was 2,000, down from yesterday. The inside Igushik test index catches have been poor since July 6, while an 11 a.m. aerial survey showed lighter river escapement than that of the previous day." "No fishing time is anticipated for the Nushagak district until the Wood River escapement improves; this improvement should commence by tomorrow if the test boat catches are indicative of run magnitude."

continued

TABLE 9. (continued)

General Announcement Number	Date	Announcement
4	July 10	"Naknek-Kvichak - Sockeye salmon escapement enumerated at the Kvichak River tower site as of 10 a.m. today was 973,000, which represents just under 50% of 2.0 million escapement fish. The inside test boat catches at Nakeen are presently indicating a strong passage rate of fish into the lower river. This passage is presently being verified with an aerial survey of Kvichak River. When it is determined that the escapement goal of 2.0 million is assured, announcements of fishing time in the Kvichak section will be made." "The escapement goal for the Naknek River system has been achieved. The Naknek section is presently open for a 24-hour fishing period. Further announcements for fishing time can be anticipated." "Egegik - An escapement of 400,000 is assured at the present time in the Egegik system, which represents 67% of the escapement goal. The strong show of fish in the river below the lagoon is expected to produce the fish needed to reach the escapement goal of 600,000. The Egegik district is currently open for a 12-hour period. Further fishing time will be predicted on analysis of catch and escapement data obtained today." "Ugashik - An escapement of 150,000 sockeye salmon has been verified to date on the Ugashik River and lagoon. Aerial surveys are currently being conducted to assess escapement build-up. The escapement to date represents 33% of the escapement goal set for the Ugashik system. The Ugashik district is also open at this time for a 12-hour period. As in the Egegik district, further fishing time will be predicated on analysis of catch and escapement data." "Nushagak - Sockeye escapement rates are increasing in the Wood River and other major systems. Test boat indices show good strength throughout the district. Announcement for fishing time in Nushagak district is imminent."
5	July 23	"The current pink salmon escapement rate past the Nushagak and Nuyakuk River counting stations are well below that needed to achieve adequate pink escapement. Through 6 a.m. today pink salmon escapement past the Nuyakuk River tower was only 11,000 or 2% of the lower end of the escapement range of 600 to 900,000, while the anticipated total district commercial catch is expected to reach 400,000 by the weekend. Therefore, dependant upon aerial assessment of the Nushagak River pink escapement on Sunday (July 25), additional closed time over the regular 48-hour weekend closure can be anticipated."

continued

TABLE 9. (continued)

1/ Emergency order period: Naknek-Kvichak, Egegik, and Ugashik districts from 9 a.m. June 23 until 9 a.m. July 17; Nushagak district from 9 a.m. June 16 until 9 a.m. July 17.

2/ Fishing continued until the end of emergency order period when regular 5-day per week fishing periods resumed.

3/ Closed to fishing.

4/ Togiak River section open 9 a.m. Monday until 9 a.m. Friday while the Osviak, Matogak, Cape Peirce and Kulukak sections are open 9 a.m. Monday until 9 a.m. Saturday unless altered by emergency order.

TABLE 10. Commercial catch by period and species, Naknek-Kvichak district, Bristol Bay, 1976.

Period	Time	Effort 1/ Drift	Effort 1/ Set	Catch by Species Sockeye	King	Chum	Pink	Coho	Total
6/21-23	2 da.			142	2				144
6/25	12 hrs. 2/	0	31	342	1				343
6/27	12 hrs. 2/	0	18	1,338	25	274			1,637
6/29	12 hrs.	600	130	203,376	70	15,967			219,413
7/ 3	12 hrs. 3/	700		386,817	85	9,228			396,130
7/ 5	12 hrs.	816	177	421,726	292	22,711			444,729
7/ 6- 7	24 hrs. 4/	675	144	305,732	158	7,422			313,312
7/10-11	39 hrs. 5/	532		516,791	177	11,301			528,269
7/12-17	5 da.			681,214	1,098	72,919			755,231
7/19-24	5 da.			54,002	376	75,830	22,655		152,863
7/26-31	5 da.			5,479	578	74,861	105,989	8	186,915
8/ 2- 7	5 da.			319	81	29,880	123,045	168	153,533
8/ 9-14	5 da.			13	36	995	8,838	269	10,151
	Totals			2,577,291	2,979	~~321,658~~ 321,388	260,527	445	3,162,900
	Percent of district catch			81.5	0.1	10.2	8.2	+	100.0

1/ Estimated actual effort based on aerial survey during fishing periods.
2/ Price dispute between fishermen and processors affected actual effort and subsequent catches.
3/ Naknek section only.
4/ Kvichak section open 12 hours, from 5 a.m. until 5 p.m. July 6, while Naknek section was open 24 hours, from 5 a.m. July 6 until 5 a.m. July 7.
5/ Naknek section was open 9 a.m. July 10 for 24 hours, and then extended until 9 a.m. July 17; while Kvichak section was opened 10 a.m. July 11 for 12 hours, and subsequently extended until 9 a.m. July 17.

TABLE 11. Commercial catch by period and species, Egegik district, Bristol Bay, 1976.

Period	Time	Effort 1/ Drift	Effort 1/ Set	Catch by Species Sockeye	King	Chum	Pink	Coho	Total
6/14-19	5 da.			1,868	280	395			2,543
6/21-23	2 da.	25	45	12,726	346	1,453			14,525
6/24	12 hrs. 2/	35	45	11,559	159	1,039			12,757
6/26	12 hrs. 2/	65	70	13,422	32	1,074			14,528
6/29	12 hrs.	225	76	120,465	54	8,483			129,002
7/ 1- 2	12 hrs.	195	89	245,922	134	5,698			251,754
7/ 3	12 hrs.	193	69	290,130	53	4,181			294,364
7/ 4	12 hrs.	173	67	106,558	44	2,391			108,993
7/ 6	12 hrs.	187	75	165,980	58	3,758			169,796
7/ 8- 9	12 hrs.	171	75	114,056	13	2,454			116,523
7/10	12 hrs.	155	75	125,369	2	3,729			129,100
7/11	12 hrs.	145	61	80,103	26	2,943			83,072
7/19-24	5 da.			15,996	36	7,464	1,565		25,061
7/26-31	5 da.			318	4	1,546	1,432	78	3,378
8/ 2- 7	5 da.			101	4	1,116	992	698	2,911
8/ 9-14	5 da.			23	3	229	111	562	928
Totals			1,304,596	1,248	47,953	4,100	1,338		1,359,235
Percent of District Catch			96.0	+	3.6	0.3	0.1		100.0

1/ Estimated actual effort based on aerial survey during fishing periods.

2/ Price dispute between fishermen and processors affected actual effort and subsequent catches.

TABLE 12. Commercial catch by period and species, Ugashik district, Bristol Bay, 1976.

Period	Time	Effort 1/ Drift	Effort 1/ Set	Catch by Species Sockeye	King	Chum	Pink	Coho	Total
6/14-19	5 da.			100	141				241
6/21-23	2 da.			295	2				297
6/25		12	10	2,709	35	145			2,889
6/27	12 hrs.	5	10	2,616	2	5			2,623
6/29	12 hrs.	6	10	2,890	8	101			2,999
7/ 1	12 hrs.	8	9	9,307		299			9,606
7/ 3- 4	12 hrs.	7	7	14,617		383			15,000
7/ 6	12 hrs.	8	5	9,198		139			9,337
7/ 8	12 hrs.	20	10	22,370	5	573			22,948
7/10	12 hrs.	31	10	47,037	12	1,160			48,209
7/12-13	24 hrs.	53	12	52,520	4	1,666			54,190
7/15	12 hrs.	45	15	15,298	19	3,934			19,251
7/19-24	5 da.			6,363	5	1,872			8,240
7/26-31	5 da.			441				37	478
8/ 2- 7	5 da.			45				110	155
8/ 9-14	5 da.			6		3		241	250
Totals				185,812	233	10,280	0	388	196,713
Percent of District Catch				94.5	0.1	5.2	0	0.2	100.0

1/ Estimated actual effort based on aerial survey during fishing periods.

TABLE 13. Commercial catch by period and species, Nushagak district, Bristol Bay, 1976.

Period	Time	Effort[1] Drift	Effort[1] Set	Catch by Species Sockeye	King	Chum	Pink	Coho	Total
5/31-6/5	5 da.				678				678
6/ 7-12	5 da.			1	5,794	5			5,800
6/14-15	48 hrs.			16	5,445	9			5,470
6/17-18	24 hrs.	148	30	408	18,410	510			19,328
6/22	12 hrs.	200	50	1,320	5,098	18,521	1		24,940
6/25	12 hrs.	275	87	17,598	4,120	113,451	2		135,171
6/28	12 hrs.	277	126	76,619	6,739	163,681	11		247,050
7/ 2- 3	12 hrs.	355	148	508,851	5,682	102,897	7		617,437
7/ 6- 7	12 hrs.	355	148	232,530	1,284	67,575	97		301,486
7/11-12	12 hrs.	355	148	103,962	646	110,320	1,127	1	216,056
7/13-14	24 hrs.	355	148	164,061	2,308	100,024	7,652	2	274,047
7/15-17	42 hrs.	355	148	91,505	3,267	113,473	39,032		247,277
7/19-24	5 da.	320[2]	122[2]	27,478	1,022	43,074	508,963	337	580,874
7/28-29	24 hrs.	95	55	391	26	2,281	105,078	1,289	109,065
8/ 2- 7	5 da.			1,055	41	639	75,962	2,256	79,953
8/ 9-14	5 da.			2	6	10	2,804	1,932	4,754
8/16-21	5 da.			28	6	46	289	752	1,121
8/23-28	5 da.			1	1	14	25	213	254
Totals				1,225,826	60,573	836,530	741,050	6,782	2,870,761
Percent of District Catch				42.7	2.1	29.2	25.8	0.2	100.0

1/ Estimated actual effort based on aerial survey during fishing periods.
2/ First day of weekly period.

TABLE 14. Commercial catch by period and species, Togiak district, Bristol Bay, 1976[1/]

Period	Time[2/]	Catch by Species					
		Sockeye	King	Chum	Pink	Coho	Total
6/14-19	5 da.	152	862	66	2		1,082
6/21-26	5 da.	4,794	7,966	4,271	116		17,147
6/28-7/3	5 da.	47,548	8,184	17,905	1,329		74,966
7/ 5-10	5 da.	89,648	7,737	27,505	1,677		126,567
7/12-17	4-1/2 da.[3/]	60,744	2,697	33,619	2,966		100,026
7/19-25	6 da.[4/]	62,349	1,877	49,522	11,797	2	125,547
7/26-31	5-1/2 da.[4/]	24,976	228	17,037	7,942	24	50,207
8/ 2- 7	5 da.	7,192	74	1,769	1,500	59	10,594
8/ 9-14	5 da.	1,500	23	237	158	413	2,331
8/16-21	5 da.	389	18	98	65	1,527	2,097
8/23-28	5 da.	75	2	43	19	4,004	6,029
8/30-9/4	5 da.					4,536	4,536
9/ 6-11	5 da.					2,095	2,095
	Totals	299,367	29,668	152,072	27,571	12,660	521,338
	Percent of District Catch	57.4	5.7	29.2	5.3	2.4	100.0

1/ Summary catch by section.

Section	Catch by Species					
	Sockeye	King	Chum	Pink	Coho	Total
Togiak	293,325	28,723	146,499	26,965	8,784	504,296
Kulukak	4,269	788	2,372	301	3,006	10,736
Osviak	1,528	122	2,294	256	870	5,070
Matogak	245	35	907	49	0	1,236
Totals	299,367	29,668	152,072	27,571	12,660	521,338

2/ Togiak River section open 4-days per week, while other sections open 5-days per week.
3/ Fishing time in Togiak section reduced by 12 hours.
4/ Fishing time in Togiak section extended beyond regular 4-days per week.

TABLE 15. Commercial catch of sockeye salmon by period from Clarks Point, Ekuk and Igushik beaches, Nushagak district, Bristol Bay, 1976.

Period	Time	Sockeye Salmon Catch by Period		
		Clarks Point Beach 1/	Ekuk Beach 2/	Igushik Beach 3/
6/14-15	48 hrs.		9	
6/17-18	24 hrs.		82	167
6/22	12 hrs.		98	178
6/25	12 hrs.	26	377	1,529
6/28	12 hrs.	881	4,521	2,613
7/ 2- 3	12 hrs.	11,556	59,390	4,145
7/ 6- 7	12 hrs.	540	2,494	6,961
7/11-12	12 hrs.	773	12,911	6,262
7/13-14	24 hrs.	1,108	18,170	6,331
7/15-17	42 hrs.	2,103	13,469	9,179
7/19-24	5 da.	364	4,414	2,273
7/28-29	24 hrs.	10	121	
8/ 2- 7	5 da.	6	223	
	Totals	17,367	116,279	39,638

1/ Approximate fishing effort was 15 set-nets. Sockeye salmon accounted for 57.6% of the total beach catch; catch of other species included 16 kings, 2,182 chums, 10,500 pinks and 83 cohos.

2/ Approximate fishing effort was 77 set-nets. Sockeye salmon accounted for 68.1% of the total beach catch; catch of other species included 611 kings, 7,981 chums, 45,189 pinks and 646 cohos.

3/ Approximate fishing effort was 50 set-nets and 17 drift skiffs. Sockeye salmon accounted for 87.1% of the total beach catch; catch of other species included 3,822 kings, 1,504 chums and 568 pinks.

TABLE 16. Commercial catch by district and species, Bristol Bay, 1976 1/

District and River System	Catch by Species					
	Sockeye	King	Chum	Pink	Coho	Total
NAKNEK-KVICHAK DISTRICT						
Kvichak River	1,045,291					
Branch River	28,675					
Naknek River	1,503,325					
Totals	2,577,291	2,979	321,658	260,527	445	3,162,900
EGEGIK DISTRICT	1,304,596	1,248	47,953	4,100	1,338	1,359,235
UGASHIK DISTRICT	185,812	233	10,280	0	388	196,713
NUSHAGAK DISTRICT						
Wood River	644,801					
Igushik River	182,184					
Nuyakuk River	349,314					
Nushagak-Mulchatna	39,084					
Snake River	10,443					
Totals	1,225,826	60,573	836,530	741,050	6,782	2,870,761
TOGIAK DISTRICT						
Togiak Section	293,325	28,723	146,499	26,965	8,784	504,296
Kulukak Section	4,269	788	2,372	301	3,006	10,736
Osviak Section	1,528	122	2,294	256	870	5,070
Matogak Section	245	35	907	49	0	1,236
Totals	299,367	29,668	152,072	27,571	12,660	521,338
Totals	5,592,892	94,701	1,368,493	1,033,248	21,613	8,110,947
Species Percent	68.9	1.2	16.9	12.7	013	100.0

1/ Apportionment of the inshore sockeye salmon catch by river system to the Naknek-Kvichak and Nushagak districts is preliminary.

TABLE 17. Sockeye salmon inshore run by age class, district and river system, Bristol Bay, 1976.[1/]

District and River System	Age Class						
	4_2	5_3	2-Ocean	5_2	6_3	3-Ocean	Total
NAKNEK-KVICHAK DISTRICT							
Kvichak River							
No.	188	1,839	2,027	72	568	640	2,667
%	7.0	69.0	76.0	2.7	21.3	24.0	100.0
Branch River							
No.	71	21	92	17	1	18	110
%	64.5	19.1	83.6	15.5	0.9	16.4	100.0
Naknek River							
No.	135	1,554	1,689	509	476	985	2,674
%	5.1	58.1	63.2	19.0	17.8	36.8	100.0
Totals							
No.	394	3,414	3,808	598	1,045	1,643	5,451
%	7.2	62.6	69.8	11.0	19.2	30.2	100.0
EGEGIK DISTRICT							
No.	50	1,347	1,397	79	153	232	1,629
%	3.1	82.7	85.8	4.8	9.4	14.2	100.0
UGASHIK DISTRICT							
No.	30	274	304	194	24	218	522
%	5.7	52.5	58.2	37.2	4.6	41.8	100.0
NUSHAGAK DISTRICT							
Wood River							
No.	683	178	861	515	37	552	1,413
%	48.3	12.6	60.9	36.5	2.6	39.1	100.0
Igushik River							
No.	89	50	139	166	61	227	366
%	24.3	13.7	38.0	45.3	16.7	62.0	100.0
Nuyakuk River							
No.	69	18	87	667	12	679	766
%	9.0	2.3	11.3	87.1	1.6	88.7	100.0
Nushagak-Mulchatna							
No.	5	1	6	65	7	72	78
%	6.4	1.3	7.7	83.3	9.0	92.3	100.0
Snake River							
No.	3	15	18	5	1	6	24
%	12.5	62.5	75.0	20.8	4.2	25.0	100.0
Totals							
No.	849	262	1,111	1,418	118	1,536	2,647
%	32.1	9.9	42.0	53.6	4.4	58.0	100.0
TOGIAK DISTRICT							
No.	88	42	130	303	53	356	486
%	18.1	8.6	26.7	62.4	10.9	73.3	100.0
TOTAL BRISTOL BAY							
No.	1,411	5,339	6,750	2,592	1,393	3,985	10,735[2/]
%	13.1	49.8	62.9	24.1	13.0	37.1	100.0

1/ The inshore run data does not include the 1976 Japanese high seas catch of maturing Bristol Bay sockeye or the 1975 Japanese catch of immatures. Return in thousands of fish.

2/ Approximately 764,000 additional sockeye salmon of several minor age classes returning in 1976 are not included in this total.

TABLE 18. Daily sockeye salmon escapement counts by river system, Bristol Bay, 1976.

Date	Kvichak River Daily	Kvichak River Accum.	Branch River Daily	Branch River Accum.	Naknek River Daily	Naknek River Accum.	Egegik River Daily	Egegik River Accum.	Ugashik River Daily	Ugashik River Accum.
6/23	0	0	0	0			0	0		
24	0	0	0	0	0	0	0	0		
25	468	468	0	0	0	0	0	0		
26	780	1,248	0	0	396	396	0	0		
27	318	1,566	0	0	558	954	0	0		
28	204	1,770	0	0	4,212	5,166	0	0		
29	360	2,130	0	0	9,660	14,826	0	0		
30	240	2,370	0	0	354	15,180	54	54		
7/ 1	180	2,550	0	0	43,074	58,254	24	78		
2	1,662	4,212	12	12	131,292	189,546	246	324	0	0
3	12,174	16,386	6	18	208,014	397,560	6,324	6,648	0	0
4	104,652	121,038	6	24	74,538	472,098	15,126	21,774	0	0
5	191,208	312,246	18	42	133,884	605,982	5,442	27,216	0	0
6	323,244	635,490	20,148	20,190	60,402	666,384	28,284	55,500	534	534
7	251,628	887,118	5,790	25,980	28,386	694,770	41,946	97,446	930	1,464
8	64,356	951,474	1,026	27,006	56,646	751,416	36,678	134,124	288	1,752
9	25,812	977,286	1,308	28,314	181,470	932,886	13,824	147,948	216	1,968
10	74,736	1,052,022	14,208	42,522	235,926	1,168,812	22,782	170,730	12	1,980
11	204,390	1,256,412	23,994	66,516	58,632	1,227,444	14,790	185,520	18	1,998
12	268,680	1,525,092	10,590	77,106	10,236	1,237,680	82,602	268,122	26,796	28,794
13	214,416	1,739,508	3,222	80,328	7,740	1,245,420	63,084	331,206	124,344	153,138
14	118,704	1,858,212	1,020	81,348	10,224	1,255,644	34,038	365,244	33,588	186,726
15	34,566	1,892,778	414	81,762	7,770	1,263,414	14,334	379,578	28,620	215,346
16	18,378	1,911,156	60	81,822	10,656	1,274,070	4,842	384,420	576	215,922
17	9,432	1,920,588			9,150	1,283,220	2,490	386,910	768	216,690
18	10,410	1,930,998			13,728	1,296,948	14,910	401,820	90	216,780
19	12,684	1,943,682			10,920	1,307,868	24,708	426,528	47,790	264,570
20	7,464	1,951,146			6,474	1,314,342	61,116	487,644	48,270	312,840
21	8,340	1,959,486			2,634	1,316,976	2,334	489,978	4,284	317,124
22	3,726	1,963,212			2,412	1,319,388	8,862	498,840	3,168	320,292
23	2,070	1,965,282			1,362	1,320,750	4,500	503,340	1,560	321,852
24							1,764	505,104	2,148	324,000
25							1,842	506,946	4,290	328,290
26							1,434	508,380	2,490	330,780
27							780	509,160	2,400	333,180
28									2,430	335,610
29									1,356	336,966
30									618	337,584
31									1,164	338,748
8/ 1									1,470	340,218
2									684	340,902
3									906	341,808
System Totals		1,965,282		81,822		1,320,750		509,160		341,808

continued

TABLE 18. (continued)

Date	Wood River Daily	Wood River Accum.	Igushik River Daily	Igushik River Accum.	Nuvakuk River Daily	Nuvakuk River Accum.	Snake River Daily	Snake River Accum.	Togiak River Daily	Togiak River Accum.
6/20	12	12								
21	0	12								
22	0	12	0	0						
23	0	12	0	0						
24	144	156	0	0						
25	822	978	0	0						
26	432	1,410	36	36						
27	120	1,530	0	36						
28	642	2,172	156	192						
29	570	2,742	0	192			7	7		
30	276	3,018	600	792			0	7		
7/ 1	90	3,108	828	1,620	0	0	0	7		
2	102	3,210	324	1,944	0	0	0	7	0	0
3	276	3,486	1,632	3,576	0	0	14	21	0	0
4	22,038	25,524	1,812	5,388	0	0	0	21	0	0
5	119,832	145,356	2,460	7,848	0	0	0	21	0	0
6	88,680	234,036	5,364	13,212	336	336	443	464	0	0
7	86,064	320,100	13,668	26,880	90	426	958	1,422	30	30
8	26,670	346,770	13,578	40,458	276	702	841	2,263	42	72
9	23,250	370,020	11,664	52,122	1,740	2,442	760	3,023	570	642
10	93,792	463,812	12,564	64,686	18,186	20,628	286	3,309	4,218	4,860
11	132,282	596,094	14,640	79,326	44,490	65,118	111	3,420	5,484	10,344
12	99,432	695,526	20,166	99,492	39,780	104,898	1,508	4,928	5,322	15,666
13	40,512	736,038	13,824	113,316	33,684	138,582	2,155	7,083	6,480	22,146
14	16,962	753,000	9,822	123,138	25,710	164,292	1,922	9,005	7,554	29,700
15	12,012	765,012	8,460	131,598	42,468	206,760	879	9,884	8,724	38,424
16	9,336	774,348	6,510	138,108	50,298	257,058	634	10,518	11,334	49,758
17	12,228	786,576	8,496	146,604	49,296	306,354	220	10,738	10,620	60,378
18	9,774	796,350	11,202	157,806	44,514	350,868	264	11,002	8,280	68,658
19	7,002	803,352	7,338	165,144	22,818	373,686	17	11,019	7,926	76,584
20	4,584	807,936	4,884	170,028	11,004	384,690	62	11,081	7,050	83,634
21	5,010	812,946	6,792	176,820	6,756	391,446	608	11,689	9,480	93,114
22	3,084	816,030	4,884	181,704	6,846	398,292	125	11,814	7,566	100,680
23	474	816,504	2,298	184,002	12,252	410,544	263	12,077	9,972	110,652
24	504	817,008	1,194	185,196	4,500	415,044	235	12,312	9,486	120,138
25			678	185,874	2,208	417,252	80	12,392	5,574	125,712
26			246	186,120	1,176	418,428	35	12,427	4,290	130,002
27					924	419,352	138	12,565	2,754	132,756
28					738	420,090	0	12,565	3,084	135,840
29					690	420,780	64	12,629	4,506	140,346
30					756	421,536	30	12,659	7,272	147,618
31					624	422,160	25	12,684	2,604	150,222
8/ 1					690	422,850	6	12,690	3,522	153,744
2					594	423,444	5	12,695	2,340	156,084
3					756	424,200	1	12,696	1,644	157,728
4					846	425,046	11	12,707	390	158,118
5					174	425,220	21[1]/	12,728	72	158,190
System Totals		817,008		186,120		425,220		12,728		158,190

1/ Total of daily counts from August 5 through termination of counting on August 20.

TABLE 19. Daily pink salmon escapement counts, Nuyakuk River, Bristol Bay, 1976.

Date	Escapement Counts Daily	Escapement Counts Accum.	Percent Daily	Percent Accum.
7/11	0	0	.00	.00
12	0	0	.00	.00
13	6	6	+	+
14	48	54	.01	.01
15	168	222	.02	.03
16	822	1,044	.12	.15
17	2,016	3,060	.29	.44
18	2,724	5,784	.39	.83
19	1,812	7,596	.26	1.09
20	1,248	8,844	.18	1.27
21	972	9,816	.14	1.41
22	756	10,572	.11	1.52
23	1,380	11,952	.20	1.72
24	1,530	13,482	.22	1.94
25	2,664	16,146	.38	2.32
26	2,406	18,552	.34	2.66
27	3,546	22,098	.51	3.17
28	2,148	24,246	.31	3.48
29	2,142	26,388	.30	3.78
30	2,064	28,452	.29	4.07
31	4,614	33,066	.66	4.73
8/ 1	8,988	42,054	1.28	6.01
2	4,458	46,512	.64	6.65
3	16,224	62,736	2.31	8.96
4	62,088	124,824	8.85	17.81
5	98,556	223,380	14.05	31.86
6	45,906	269,286	6.54	38.40
7	(- 3,858)	265,428	(- .55)	37.85
8	8,916	274,344	1.27	39.12
9	11,082	285,426	1.58	40.70
10	15,660	301,086	2.23	42.93
11	34,854	335,940	4.97	47.90
12	45,486	381,426	6.48	54.38
13	113,580	495,006	16.19	70.57
14	61,578	556,584	8.78	79.35
15	34,812	591,396	4.96	84.31
16	28,242	619,638	4.03	88.34
17	38,388	658,026	5.47	93.81
18	24,252	682,278	3.46	97.27
19	13,854	695,132	1.97	99.24
20	5,346	701,478	.76	100.00

Summary: 1/	Accum.	Percent
Tower Enumeration	701,478	88.29
Aerial Enumeration	93,000	11.71
System Total	794,478	100.00

1/ Tower enumeration through termination of counting on August 20. Aerial survey estimate of spawning pink salmon in Nuyakuk River below counting tower on Aug. 20.

TABLE 20. Summary of Kvichak River daily sockeye salmon escapement from tower counts, aerial surveys and inside test fishing estimates, Bristol Bay, 1976.[1]

	Enumeration Method							
	Tower		Aerial Survey[2]				Inside Test Fishing[3]	
Date	Daily	Accum.	Nakeen to Index	Index	Index to Tower	Total River	Daily	Accum.
/25	.5	.5					0	0
26	.8	1.2					0	0
27	.3	1.6					.4	.4
28	.2	1.8					0	.4
29	.4	2.1	-	o	-	-	0	.4
30	.2	2.4					0	.4
./ 1	.2	2.6					78.2	78.6
2	1.7	4.2					49.3	127.9
3	12.2	16.4	18	79	22	119	102.8	230.7
4	104.7	121.0	62	154	50	266[4]	88.7	319.4
5	191.2	312.2	95	283	102	480	275.3	594.7
6	323.2	635.5	258	159	144	561	19.2	613.9
7	251.6	887.1	9	46	101	156	7.6	621.5
8	64.4	951.5	2	5	18	25	30.5	652.0
9	25.8	977.3	12	2	7	21	221.8	873.8
10	74.7	1,052.0	335	118	26	479	521.4	1,395.2
11	204.4	1,256.4	328	511	167	1,006[5]	523.5	1,918.7
12	268.7	1,525.1						
13	214.4	1,739.5						
14	118.7	1,858.2						
15	34.6	1,892.8						
16	18.4	1,911.2						
17	9.4	1,920.6						
18	10.4	1,931.0						
19	12.7	1,943.7						
20	7.5	1,951.1						
21	8.3	1,959.5						
22	3.7	1,963.2						
23	2.1	1,965.3						
Season Totals		1,965.3						1,918.7

./ All figures expressed in thousands of fish.
2/ Figures represent an average of all survey estimates available for each day.
3/ Daily passage rate estimate based on 284 fish per index point.
4/ Poor survey conditions.
5/ Average of two surveys on the same day.

TABLE 21. Summary of Egegik River daily sockeye salmon escapement from tower counts, aerial surveys and inside test fishing estimates, Bristol Bay, 1976.[1]

Date	Enumeration Method: Tower Daily	Tower Accum.	Aerial Survey[2]	Inside Test Fishing[3] Daily	Inside Test Fishing[3] Accum.	Comments
6/23			1.9			
24			3.6			
25			20.0			
26			34.8	10.8	10.8	
27			52.0	9.0	19.8	
28			37.5	56.4	76.2	Limited test fishing
29			50.0	38.2	114.4	
30	0.1	0.1	78.5	24.1	138.5	No river count
7/ 1	+	0.1	76.3	94.0	232.5	
2	0.2	0.3	90.6	216.3	448.8	Limited test fishing
3	6.3	6.6	103.1	94.2	543.0	
4	15.1	21.7	99.4	57.9	600.9	Low survey count
5	5.5	27.2	190.0	48.2	649.1	
6	28.3	55.5		23.1	672.2	
7	41.9	97.4	224.0	128.4	800.6	
8	36.7	134.1	210.5	226.8	1,027.4	
9	13.8	147.9	223.6	81.4	1,108.8	
10	22.8	170.7	263.0	69.6	1,178.4	
11	14.8	185.5	317.0	2.0	1,180.4	
12	82.6	268.1	108.0	10.2	1,190.6	Low survey count
13	63.1	331.2	125.0			Low survey count
14	34.0	365.2	101.0			
15	14.3	379.5	102.0			
16	4.9	384.4				
17	2.5	386.9	126.6			
Season Totals		509.2			1,190.6	

1/ All figures in thousands of fish.
2/ Includes estimate of fish in clearwater immediately below the lagoon indes areas.
3/ Estimates based on average of escapement/indes for previous years (173 fish/index point). Linear interpolations made for days not fished.

TABLE 22. Summary of Ugashik River daily sockeye salmon escapement from tower counts and aerial survey estimates, Bristol Bay, 1976.[1]

Date	Enumeration Method: Tower Daily	Tower Accum.	Aerial Survey[2]	Comments
6/23				
24				
25			0	Good visibility
26				
27			0.9	
28				
29			3.7	
30				
7/ 1			1.1	
2				
3			7.9	
4			16.5	Lagoon count only
5			15.7	Lagoon count only
6	0.5	0.5		
7	0.9	1.4	50.0	
8	0.3	1.7	25.6	Lagoon count only
9	0.2	1.9	153.0	
10	+	2.0	136.8	
11	+	2.0	272.0	
12	26.8	28.8		Conditions too poor for survey
13	124.3	153.1	18.0	Low survey count
14	33.6	186.7	32.5	Lagoon count only
15	28.6	215.3	63.8	
16	0.6	215.9		
17	0.8	216.7		
18	0.1	216.8		
19	47.8	264.6		Poor counting conditions
20	48.2	312.8		Poor counting conditions
21	4.3	317.1		
22	3.2	320.3	28.0	
Season Total		341.8		

1/ All figures in thousands of fish.
2/ Includes total estimates for lagoon index areas and river below lagoon except as otherwise indicated.

TABLE 23. Summary of Wood River daily sockeye salmon escapement from tower counts and aerial survey estimates, Bristol Bay, 1976.[1/]

	Enumeration Method			
	Tower		Aerial Survey[2/]	
Date	Daily	Accum.	Estimate	Comments
6/25	0.8	1.0	0.1	Visibility fair to good; scattered schools
26	0.4	1.4		
27	0.1	1.5		
28	0.6	2.2		
29	0.6	2.7	+	Visibility excellent; less than 100
30	0.3	3.0		
7/ 1	0.1	3.1		
2	0.1	3.2		
3	0.3	3.5	0	Visibility good
4	22.0	25.5	8.0	Visibility fair; minimal estimate
5	119.8	145.4	29.0	7:50 a.m.; visibility poor; minimal estimate
			25.0	5:20 p.m.; visibility poor
6	88.7	234.0	22.6	5:40 a.m.; visibility fair; heavy in lower river
			39.0	9:40 a.m.; poor survey conditions; upper river only; estimate total river population at 150,000 sockeye
7	86.1	320.1	33.4	8:30 a.m.; visibility excellent; heavy in upper river
			3.7	4:50 p.m.; visibility fair; wind
8	26.7	346.8	7.2	9:50 a.m.; excellent visibility
			1.8	6:50 p.m.; fair visibility; no fish lower river
9	23.3	370.0	6.8	10:40 a.m.; excellent visibility
			0.7	4:50 p.m.; fair to poor visibility
10	93.8	463.8	17.0	11:00 a.m.; excellent visibility
			28.0	5:30 p.m.; good visibility
11	132.3	596.1	48.0	Poor visibility; minimal estimate; heavy in lower river
12	99.4	695.5	29.4	Visibility fair; minimal estimate; fish in lower river
13	40.5	736.0		
14	17.0	753.0	2.4	Visibility excellent
15	12.0	765.0		
Season Total		817.0		

1/ All figures in thousands of fish.
2/ Includes estimates of fish in clear water index areas immediately below the counting tower at the time of the survey.

TABLE 24. Summary of Igushik River daily sockeye salmon escapement from tower counts, aerial survey and inside test fishing estimates, Bristol Bay, 1976.[1]

Date	Enumeration Method: Tower Daily	Tower Accum.	Aerial Survey[2]	Inside Test Fishing Index[3]	Comments
6/21				0	
22	0	0		12.3	
23	0	0		13.9	
24	0	0		38.7	
25	0	0	0	120.0	Good survey conditions
26	+	+		245.6	
27	0	+		243.9	
28	0.2	0.2		87.8	
29	0	0.2		70.8	
30	0.6	0.8		52.2	
7/ 1	0.8	1.6		130.3	
2	0.3	1.9		360.0	
3	1.6	3.6		176.0	
4	1.8	5.4		180.0	
5	2.5	7.8	7.1	396.0	8:20 a.m.; good survey conditions
			1.0		5:50 p.m.; poor survey conditions
6	5.4	13.2	+	538.9	Poor survey conditions
7	13.7	26.9	8.3	200.0	8:00 a.m.; excellent visibility
			5.6		5:20 p.m.; good visibility
8	13.6	40.5	5.3	144.0	Excellent visibility
9	11.7	52.1	3.2	61.3	Excellent visibility
10	12.6	64.7	3.0	199.6	Excellent visibility
11	14.6	79.3		206.5	
12	20.2	99.5	2.3	268.3	Fair visibility
13	13.8	113.3		134.5	
14	9.8	123.1	5.9	14.6	Excellent visibility
15	8.5	131.6		116.5	
16	6.5	138.1			
17	8.5	146.6			
18	11.2	157.8			
19	7.3	165.1			
20	4.9	170.0			
Season Total		186.1			

1/ Tower and aerial survey figures expressed in thousands of fish. Test fishing indices expressed in fish/100 fathom hours.
2/ Includes estimates of fish in clear water index areas immediately below the counting tower at the time of the survey.
3/ Test fishing indices represent an average of all drifts for both tides each day.

TABLE 25. Summary of Nuyakuk River daily pink salmon escapement from tower counts and aerial survey estimates, Bristol Bay, 1976.1/

Date	Enumeration Method: Tower Daily	Tower Accum.	Aerial Survey2/: Black Pt. to Port. Cr.	Aerial Survey2/: Portage Cr. to Ekwok	Comments
7/25	2.7	16.1	14.0	16.0	Good to excellent visibility;
26	2.4	18.6			Total river est.: 100,000 - 200,000
27	3.5	22.1	49.0	70.0*	Fair to poor visibility; minimal count;
28	2.1	24.2			total river est.: 300,000 - 400,000+.
29	2.1	26.4			*To Iowithla River
30	2.1	28.5			
31	4.6	33.1			
8/ 1	9.0	42.1			(8/2)
2	4.5	46.5			Heavy below Mulchatna River; 200-
3	16.2	62.7			300,000 fish between Ekwok and Nuyakuk tower. Visibility poor
4	62.1	124.8			
5	98.6	223.4			(8/3) 43,000 fish Nushagak River to
6	45.9	269.3			Nuyakuk River tower; heavy fish below
7	(- 3.9)	265.4			Ekwok; visibility fair
8	8.9	274.3			
9	11.1	285.4			
10	15.7	301.1			200-300,000 fish from Koliganek to
11	34.9	335.9			Nuyakuk tower; visibility good
12	45.5	381.4			
13	113.6	495.0			
14	61.6	556.6			
15	34.8	591.4			
16	28.2	619.6			
17	38.4	658.0			
18	24.3	682.3			
19	13.9	695.1			
20	5.3	701.5			40,000 fish to 5 miles below Nuyakuk-Nushagak River confluence; 1,800 fish to 5 miles above Nushagak-Nuyakuk River confluence; 93,000 fish in Nuyakuk River below tower; excellent visibility
Season Total		794.5			

1/ Tower and aerial survey figures expressed in thousands of fish.
2/ Includes estimates of fish in clear water from Black Point on the Nushagak River to the confluence of the Nushagak and Nuyakuk Rivers, and in the Nuyakuk River below the counting tower.

TABLE 26. Summary of Togiak River daily sockeye salmon escapement from tower counts and aerial survey estimates, Bristol Bay, 1976.[1/]

Date	Enumeration Method: Tower Daily	Tower Accum.	Aerial Survey[2/] Togiak to Pung.	Pungokepuk to Ongi.	Ongivinuck to Tower	Total River	Comments
7/ 6	0	0	0.4	0.6	+	1.1	Poor survey conditions;
7	+	+					total includes 400
8	+	0.1					schooled fish.
9	0.6	0.6	-	-	-	4.4	Fair to good survey
10	4.2	4.9					conditions; 15,000 or
11	5.5	10.3					less in entire river.
12	5.3	15.7	8.6	7.3	7.4	23.3	Fair to good survey
13	6.5	22.1					conditions; equal strengt
14	7.6	29.7					entire river; 16,800
15	8.7	38.4					moving fish, 26,500
16	11.3	49.8					schooled.
17	10.6	60.4					
18	8.3	68.7	5.0	6.0	7.3	19.3	Fair to good survey
19	7.9	76.6					conditions.
20	7.1	83.6					
21	9.5	93.1					
22	7.6	100.7					
23	10.0	110.7					
24	9.5	120.1					
25	5.6	125.7					
26	4.3	130.0					
27	2.8	132.8					
28	3.1	135.8					
29	4.5	140.3					
30	7.3	147.6					
Season Total		158.2					

1/ Tower and aerial survey figures expressed in thousands of fish.
2/ Includes estimates of fish in clear water index areas immediately below the counting tower of the time of the survey.

TABLE 27. Summary of king, chum and pink salmon escapement by district and river system, Bristol Bay, 1976.[1]

District and River System	Escapement in Number of Fish					
	King Salmon		Chum Salmon		Pink Salmon	
	Tower[2]	Aerial[3]	Tower[2]	Aerial[3]	Tower[2]	Aerial[3]
NAKNEK-KVICHAK DISTRICT						
Kvichak River	-	50	-	-	-	17,000
Branch River	-	8,750	-	5,250	-	13,000
Naknek River[4]	-	4,830	-	6,000	-	110,000
Totals	-	13,630	-	11,250	-	140,000
NUSHAGAK DISTRICT						
Wood River[5]	18	910	90	-	1,986	20,000
Igushik River	216	170	456	-	2,070	3,000
Nuyakuk River[6]	2,490	1,180	4,434	-	701,478	93,000
Nushagak River[7]	-	14,330	-	-	-	41,800
Mulchatna River[8]	-	17,890	-	-	-	-
Snake River	5	40	24	-	-	100
Totals	2,729	34,520	5,004	-	705,534	157,900
TOGIAK DISTRICT						
Togiak River[9]	12	3,880	714	99,200	768	32,800
Ungalikthluk River[10]	-	410	-	23,000	-	0
Kulukak River	-	1,030	-	14,600	-	-
Quigmy River	-	0	-	6,600	-	0
Matogak River	-	+	-	9,600	-	2,000
Osviak River	-	100	-	26,100	-	2,000
Hagemeister Island[11]	-	0	-	7,200	-	0
Cape Pierce[12]	-	0	-	9,800	-	0
Totals	12	5,420	714	196,100	768	36,800

1/ Detailed information on king, chum and pink salmon escapements are published on an annual basis in summary aerial survey reports.
2/ Counting towers are located on the main river systems, except Snake River where a weir is employed.
3/ Aerial survey estimates of king and chum salmon are considered to be indices of escapement, and do not represent the total escapement; pink salmon aerial surveys represent total estimated escapements.
4/ Includes Big, King Salmon and Pauls Creeks.
5/ Includes Ice and Sunshine Creeks, and Muklung River.
6/ Includes Tikchik River.
7/ Includes Iowithla, Kokwok, King Salmon and Chichitnok Rivers, and Klutuk and Klutispaw Creeks.
8/ Includes Old Man and Mosquito Creeks, and Stuyahok, Koktuli, Chilchitna and Chilikadrotna Rivers.
9/ Includes Gechiak and Pungokepuk Creeks, and Kashaiak, Narogurum and Ongivinuck Rivers.
10/ Includes Kukayachagak River.
11/ Includes North and South Creeks.
12/ Includes Pierce Creek and Slug River.

TABLE 28. Subsistence catch of salmon by species, district and village area, Bristol Bay, 1976.[1]

Area	Permits Issued	Catch by Species					Total
		Sockeye	King	Chum	Pink	Coho	
NAKNEK-KVICHAK DISTRICT							
Naknek system[2]	179	6,300	700	200	1,100	200	8,500
Kvichak system:							
Levelock	32	5,300	100	200	300	100	6,000
Igiugig	15	6,800	100	500	100	300	7,800
Kokhanok	17	17,100	+	+	+	0	17,100
Pedro Bay	16	4,400	+	0	0	+	4,400
Port Alsworth	19	5,500	0	0	0	0	5,500
Nondalton	33	20,500	0	0	0	0	20,500
Newhalen[3]	-	-	-	-	-	-	-
Iliamna	35	16,300	0	0	0	+	16,300
District Totals	346	82,200	900	900	1,500	600	86,100
EGEGIK DISTRICT							
Egegik system[3,4]	2	-	-	-	-	-	-
UGASHIK DISTRICT							
Ugashik system[5]	21	1,200	100	100	100	300	1,800
NUSHAGAK DISTRICT							
Nushagak Bay[6]	179	9,500	2,200	1,200	1,000	1,500	15,400
Wood system[7]	22	2,000	+	+	+	+	2,000
Igushik system:							
Manokotak	36	6,700	300	700	400	300	8,400
Nushagak system:							
Portage Creek	14	1,500	400	200	100	100	2,300
Ekwok	15	5,800	900	1,800	400	100	9,000
New Stuyahok	36	5,700	2,500	2,300	500	100	11,100
Koliganek	15	3,500	600	1,000	300	0	5,400
District Totals	317	34,700	6,900	7,200	2,700	2,100	53,600
TOGIAK DISTRICT							
Togiak system[8]	30	3,800	500	900	100	500	4,800
Total Bristol Bay	716	120,900	8,400	9,100	4,400	3,500	146,300

1/ District totals rounded to nearest 100 fish.
2/ Includes the communities of Naknek, South Naknek and King Salmon.
3/ Catch not reported.
4/ Includes the villages of Egegik and North Egegik.
5/ Includes the villages of Pilot Point and Ugashik.
6/ Includes the communities of Dillingham, Kanakanak, Clarks Point, Charks Slough (Queen), Ekuk, Igushik beach and the Lewis Point fish camps.
7/ Includes the village of Aleknagik.
8/ Includes the villages of Togiak and Twin Hills.

TABLE 29. Herring roe-on-kelp production in pounds by day, Togiak district, Bristol Bay, 1976.[1]

Date	Number		Production in Pounds	
	Fishermen	Deliveries	Daily	Accumulative
5/22	5	5	9,562	9,562
23	8	8	11,717	21,279
24	8	8	14,174	35,427
26	4	4	2,595	38,022
27	7	8	14,833	52,855
29	5	5	7,108	59,963
30	5	5	7,943	67,906
31	4	4	6,290	74,196
6/ 1	5	5	7,771	81,967
2	25	28	42,944	124,911
3	13	17	13,759	138,670
4	3	3	2,816	141,486
5	3	3	828	142,314
6	2	2	2,565	144,879
7	1	1	2,153	147,032
9	2	2	7,880	154,912
11	8	8	65,508	220,420
12	1	1	38,360	258,780
14	1	1	37,000	295,780
Totals	49[2]	118	295,780	295,780

1/ All herring roe-on-kelp taken in or near Herring (Metervik) Bay and Eagle Bay.
2/ Total number of individual fishermen participating in the harvest.

TABLE 30. Fishery operators by district, Bristol Bay, 1976.[1]

Name of Operator	Location	No. of Lines[2] A	O	Size	Comments
	NAKNEK-KVICHAK DISTRICT				
Alaska Far East Corp. 200 W. Thomas St. #250 Seattle, Washington 98119	King Salmon M/V "CBI"	None			Fresh and cured salmon. Salmon roe. Tender Service.
Alaska Packers Association Box 3326 Bellevue, Washington 98009	S. Naknek	3 2	3 2	1 lb. tall ½ lb. flat	Canned salmon and salmon roe. Custom canned for Diamond E.
Bumble Bee Seafoods Division of Castle & Cooke Box 60 Astoria, Oregon 97103	S. Naknek	3 2	3 2	1 lb. tall ½ lb. flat	Canned salmon and salmon roe. Custom canned for Columbia Wards and Red Salmon.
Columbia Wards Fisheries Box 5030 University Station Seattle, Washington 98105	(Ekuk)	None			Provided tender service for fishermen. Fish shipped to Ekuk for canning.
Dry Bay Fish Co. 7654 79th S.E. Mercer Is., Washington	M/V "Gina Karen" (freezer)	None			Frozen salmon and salmon roe.
Kayak Packing Company 2366 Eastlake Ave. E. #201 Seattle, Washington 98102	M/V "Kayak"	1	1	1 lb. tall	Canned salmon and salmon roe.
~~Kenai~~ Packers 2155 N. Northlake Way Seattle, Washington 98103	S. Naknek	None			~~Provided fish camp &~~ briner tender service for fishermen.
Kvichak-Naknek Aquatic Coop. Box 93 Naknek, Alaska 99633	Naknek	None			Salmon buyer.
Kodiak King Crab, Inc. P.O. Box 1457 Kodiak, Alaska 99615	Naknek River	None			Provided briner tender service for fishermen.
Nelbro Packing Company P.O. Box 5299 Univ. Sta. Seattle, Washington 98105	Naknek	1 3	1 3	1 lb. tall ½ lb. flat	Canned salmon and salmon roe.
New England Fish Co. Pier 89 Seattle, Washington 98119	Pederson Pt.	1 1	0 0	1 lb. tall ½ lb. flat	Fish camp only. Provided tender service. Fish shipped to Egegik for canning or out of Bay for processing.

(continued)

TABLE 30. (continued)

Name of Operator	Location	No. of Lines 2/ A	O	Size	Comments
Northern Peninsula Fisheries P.O. Box 83 King Cove, Alaska 99612	M/V "Bobbie" (freezer)	None			Fresh and frozen salmon. Salmon roe.
Peter Pan Seafoods, Inc. 1220 Dexter Horton Blvd. Seattle, Washington 98104	Naknek (Nornak) S. Naknek (Warren)	None			Fish camp only. Provided tender service. Fish shipped to Dlg. or outside of Bay for canning.
Queen Fisheries, Inc Bldg. C-3, Room 116 Fishermen's Terminal Seattle, Washington 98110	(Nushagak)	None			Provided tender service for fishermen. Fish shipped to Nushagak for canning.
Red Salmon Company P.O. Box 5030 University Station Seattle, Washington 98105	Naknek	None			Fish camp only. Provided tender service. Fish canned at Bumble Bee.
Universal Seafoods, Lt. Dutch Harbor, Alaska 99695	M/V "Pacific Voyager" M/V "Aleutian Spray" (Briners)	None			Salmon transported to Dutch Harbor for processing.
Whitney-Fidalgo Seafoods, Inc. 2360 W. Commodore Way Seattle, Washington 98199	Naknek	2	2	1 lb. tall	Canned salmon and salmon roe. Remainder of fish airlifted to Anchorage for canning.
	EGEGIK DISTRICT				
Alaska Packers Association	(S. Naknek)	None			Provided tender service. Custom canned for Diamond "E".
Bumble Bee Seafoods	(S. Naknek)	None			Provided tender service. Canned fish for Columbia Wards.
Columbia Wards Fisheries	S. Egegik	None			Fish camp only. Provided terder service.
Denton Sherry 17221 Palatine Ave. N. Seattle, Washington 98131	M/V "Glacier King" (Freezer)	None			Frozen salmon.
Dry Bay Fish Co.	M/V "Gina Karen" (Freezer)	None			Frozen salmon.

(continued

TABLE 30. (continued)

Name of Operator	Location	No. of Lines 2/ A	O	Size	Comments
Egegik Resources Development, Inc. dba Diamond "E" Fisheries Box 40 Egegik, Alaska 99579	Egegik	3	0	1 lb. tall	Operated as fish camp only. Provided tender service. Fish canned at Alaska Packers - Naknek.
Kayak Packing Co.	Big Creek M/V "Kayak"	1	1	1 lb. tall	Canned salmon and salmon roe.
Kenai Packers	(S. Naknek)	None			Provided tender service.
Nelbro Packing Co.	(Naknek)	None			Provided tender service.
New England Fish Company	Egegik	1 1	1 1	1 lb. tall ½ lb. flat	Canned salmon and salmon roe. Remainder of fish transported out of Bay for processing.
Northland Seafoods P.O. Box 4-922 Anchorage, Alaska 99509	Red Bluff, Egegik Bay	None			Fresh and smoked salmon. Salmon roe.
Peter Pan Seafoods, Inc.	Naknek	None			Provided tender service.
Queen Fisheries, Inc.	(Clarks Slough, Nushagak Bay)	None			Provided tender service. Fish shipped to Nushagak plant for canning.
Traco, Inc. 1800 Westlake Ave. N. #110 Seattle, Washington 98109	Coffee Pt. Church Pt. M/V "Deep Sea" M/V "Glacier King" (Freezers)	1	1	½ lb. flat	Canned, fresh, and frozen salmon. Salmon roe.

(continued)

Name of Operator	Location	No. of Lines 2/ A	O	Size	Comments
UGASHIK DISTRICT					
Alaska Packers Association	Pilot Point (S. Naknek)	None			Operated as fish camp only. Provided tender service.
Briggs-Way Company Ugashik, Alaska 99683	Ugashik Village	1	1	½ lb. glass	Canned salmon.
Egegik Resources Development, Inc. dba Diamond E Fisheries	(Egegik)	None			Provided tender service. Fish canned by Alaska Packers-Naknek.
Griechen Enterprises Pilot Point, Alaska 99649	Pilot Point	None			Fresh fish.
Hansen Co. Pilot Point, Alaska 99649	Pilot Point	None			Salted salmon.
Nelbro Packing Co.	(Naknek)	None			Provided tender service.
New England Fish Co.	(Egegik)	None			Provided tender service.
Traco, Inc.	Pilot Point	None			Fresh fish.
Whitney-Fidalgo Seafoods	(Naknek)	None			Provided tender service.
NUSHAGAK DISTRICT					
Alaska Packers Association	Clarks Point	None			Fish camp only. Fish custom canned by Columbia Wards Fisheries at Ekuk.
Columbia Wards Fisheries	Ekuk M/V "Double Star" (Freezer)	3 1	3 1	1 lb. tall ½ lb. flat	Canned and frozen salmon. Salmon roe.
Dillingham Commercial Co.	Dillingham	None			Fish flown out of Bay for processing.
Dry Bay Fish Co.	M/V "Gina Karen" (Freezer)	None			Frozen salmon. Salmon roe.
Kachemak Seafoods	(Togiak)	None			Fresh salmon. Salmon roe. Flew fish out of Bay for processing.
Kodiak King Crab, Inc.	M/V "Kernel Korn" (Freezer)	None			Frozen salmon.

(continued)

Name of Operator	Location	No. of Lines2/ A	O	Size	Comments
N & N Market P.O. Box 23 Dillingham, Alaska 99576	Dillingham	None			Purchased fresh fish for retail market.
Peter Pan Seafoods	Dillingham	2 2	1 2	1 lb. tall ½ lb. flat	Canned and fresh salmon. Salmon roe.
Queen Fisheries	Clarks Slough, Nushagak Bay	1 2 1	1 2 1	1 lb. tall ½ lb. flat ¼ lb. flat	Canned and fresh salmon. Salmon roe.
Togiak Fisheries	(Togiak Bay)	None			Canned and frozen salmon. Salmon roe. Flew fish to Togiak plant for processing.
Traco, Inc.	M/V "MacLeod"	None			Fresh salmon. Salmon roe.
	TOGIAK DISTRICT				
Arctic Roe P.O. Box 67 Naknek, Alaska 99633	Kulukak Bay	None			Herring roe-on-kelp.
Columbia Wards Fisheries	(Ekuk)	None			Provided tender service. Fish canned at Ekuk.
Dry Bay Fish Co.	M/V "Gina Karen"	None			Frozen salmon and salmon roe.
Fish Processor P.O. Box 7 Naknek, Alaska 99633	Kulukak Bay F/V "Good Hope"	None			Herring roe-on-kelp.
Kachemak Seafoods P.O. Box 129 Togiak, Alaska 99678	Togiak	None			Salmon and salmon roe. Fish transported out of Bay for canning or freezing.
Kodiak King Crab, Inc.	M/V "Kodiak Queen" M/V "Chena" (Briners)	None			Briner tender service for fishermen. Fish shipped out of Bay for processing.
Kvichak-Naknek Aquatic Coop.	Kulukak Bay	None			Herring roe-on-kelp.
Peter Pan Seafoods	(Dillingham)	None			Provided tender service. Fish canned at Dillingham.

(continued)

TABLE 30. (continued)

Name of Operator	Location	No. of Lines[2/] A	O	Size	Comments
Queen Fisheries, Inc.	(Clarks Slough, Nushagak Bay)	None			Provided tender service. Fish canned at Nushagak plant.
Togiak Fisheries, Inc. 2366 Eastlake Ave. E. #335 Seattle Washington 98102	Togiak Bay	1 1	1 1	1 lb. tall ½ lb. flat	Canned and frozen salmon. Salmon roe. Herring roe-on-kelp.
Whitney-Fidalgo Seafoods	Naknek)	None--			Herring roe-on-kelp.

SUMMARY

District	No. of Lines[2/] 1 lb. tall A	1 lb. tall O	1/2 lb. flat A	1/2 lb. flat O	1/4 lb. flat A	1/4 lb. flat O
Naknek-Kvichak	11	10	8	7	0	0
Egegik	5	2	2	2	0	0
Ugashik	0	0	1	1	0	0
Nushagak	6	5	5	5	1	1
Togiak	1	1	1	1	0	0
Total[3/]	22	17	17	16	1	1

1/ Indicates operators with eigher a physical plant or processing facility in a district or those operators from other areas buying fish and/or providing tender service for fishermen in districts away from the facility (location in parenthesis).

2/ A-indicates the number of canning lines available for operation. O-indicates the number of canning lines actually operated.

3/ Total does not equal sum of districts for 1 lb. tall capacity since Kayak Packing Co. is included in both Naknek-Kvichak and Egegik district sub-totals.

APPENDIX TABLES

APPENDIX TABLE 1. Sockeye salmon forecast and inshore return, Bristol Bay, 1960-76.

Year	Forecast 1/ F.R.I. 2/	Forecast 1/ A.D.F.& G. 3/	Inshore Return 4/	% Return of Forecast F.R.I.	% Return of Forecast A.D.F. & G.
1960	46,000,000	34,400,000	36,409,000	79	106
61	18,700,000	43,600,000	18,116,000	97	42
62	9,400,000	19,900,000	10,423,000	111	52
63	15,300,000	8,600,000	6,905,000	45	80
64	19,300,000	17,400,000	10,938,000	57	63
1965 5/	26,500,000	27,780,000	53,129,000	200	191
66	34,000,000	31,271,000	17,553,000	52	56
67	21,500,000	13,749,000	10,353,000	48	75
68	10,500,000	10,409,000	8,010,000	76	77
69	16,200,000	21,274,000	19,043,000	118	90
1970	57,200,000	55,812,000	39,399,000	69	71
71	18,100,000	15,170,000	15,825,000	87	104
72	6,600,000	9,744,000	5,400,000	82	55
73	5,800,000	6,200,000	2,444,000	42	39
74	3,900,000	5,004,000	10,961,000	281	219
1975	12,100,000	11,960,000	24,161,000 6/	200	202
76	9,800,000	11,969,000	11,499,000 6/	117	96

1/ Estimated Japanese immature/mature harvest was not subtracted from either forecast until 1965.
2/ Forecast by Fisheries Research Institute based on purse seine data gathered south of Adak. Not broken down by river system. Included North Peninsula and Bristol Bay sockeye salmon from 1960-64.
3/ Inshore river system forecast by the Department, except 1960, which was by F.R.I. Forecast based on cycle analysis, smolt production and ratio of 2-ocean to 3-ocean age return.
4/ Inshore Bristol Bay catch plus escapement.
5/ Togiak, Snake and Nushagak-Mulchatna systems included for the first time in forecast.
6/ Preliminary.

(Data Sources: 6, 7, 17 and 23)

APPENDIX TABLE 2. Comparison of seasonal catches and adjusted indices from Port Moller offshore test fishing with inshore runs of sockeye and chum salmon to Bristol Bay, 1968-76. 1/

Year	Minutes Fished	No. of Sets	Catch	Catch Indices (I) 2/ Actual	Adusted	Inshore Run(R)3/	(R)/(I)
			SOCKEYE SALMON				
1968	9,587	128	522	226.9	298.9	8,010.0	26.8
69	7,865	101	1,287	548.7	727.8	19,043.2	26.2
70	6,422	98	1,033 4/	603.2	823.8	39,399.4	47.8
71 5/	4,884	84	858	544.7	653.5	15,824.8	24.2
72	3,959	69	120	65.6	94.9	5,400.4	56.9
1973	3,848	65	424	214.0	339.6	2,443.9	7.2
75	5,456	91	1,968	923.3	1,289.0	24,231.8	18.8
76	8,075	131	1,353	634.2	688.6	11,498.6 6/	16.7
			CHUM SALMON				
1968	9,587	128	175	83.5	93.2 7/	363.8	3.9
69	7,865	101	132	62.5	78.4	333.0	4.2
70	6,422	98	169	77.6	106.4	717.8	6.7
71 5/	4,884	84	124	69.0	85.6	676.9	7.9
72	3,959	69	100	55.2	66.0	656.6	9.9
1973	3,848	65	175	82.7	142.1	684.5	4.8
75	5,456	91	102	48.0	74.2	325.4	4.4
76	8,075	131	409	197.3	213.8	1,368.5 6/	6.4

1/ Program initiated in 1967 but data is not comparable to other years. Program not operated in 1974. All data from catches with 5-3/8" mesh gear only.
2/ Expressed in fish/100 fathom hours. Adjusted indices include linear estimates for unfished stations and days.
3/ Inshore catch plus escapement; chum salmon catch only. All figures in thousands of fish.
4/ Smaller catch reflects use of 150 fathoms compared to 200 fathoms used in other years.
5/ From 6/17 to 6/27 150 fathoms of gear was in use that had been stretched through fishing to about 5-1/2" mesh.
6/ Preliminary.
7/ Adjusted for missed days only.

(Data Sources: 1 and 14)

APPENDIX TABLE 3. Comparison of inshore and high seas commercial catch of sockeye salmon with total Bristol Bay return, 1957-76. 1/

Year	Bristol Bay Catch	Japanese Catch of Bristol Bay Sockeye Salmon 2/	Total Catch	Bristol Bay Escapement	Bristol Bay Total Return 3/	% Japanese Catch of Total Catch	% Japanese Catch of Total Bristol Bay Run
1957	6,276	7,349	13,625	4,734	18,359	53.9	40.0
58	2,986	377	3,363	2,783	6,146	11.2	6.1
59	4,608	598	5,206	8,280	13,486	11.5	4.4
60	13,705	3,727	17,432	22,704	40,136	21.4	9.3
61	11,914	6,129	18,043	6,202	24,245	34.0	25.3
1962	4,718	960	5,678	5,705	11,383	16.9	8.4
63	2,871	1,001	3,872	4,033	7,905	25.9	12.7
64	5,596	314	5,910	5,341	11,251	5.3	2.8
65	24,255	6,943	31,198	28,873	60,071	22.3	11.6
66	9,314	1,935	11,249	8,239	19,488	17.2	9.9
1967	4,331	922	5,253	6,022	11,275	17.6	8.2
68	2,793	885	3,678	5,217	8,895	24.1	9.9
69	6,622	2,031	8,653	12,421	21,074	23.5	9.6
70	20,721	3,968	24,689	18,679	43,368	16.1	9.1
71	9,584	2,049	11,633	6,241	17,874	17.6	11.5
1972	2,416	1,303	3,719	2,984	6,703	35.0	19.4
73	761	839	1,600	1,683	3,283	52.4	25.6
74	1,362	523 4/	1,885	9,598	11,483	27.7	4.6
75	4,899	1,212 4/	6,111	19,333	25,444	19.8	4.8
76 4/	5,593	934	6,527	5,906	12,433	14.3	7.5
20-Year Total	145,325	43,999	189,324	184,978	374,302		
1957-66 Total	86,243	29,333	115,576	96,894	212,470		
1967-76 Total	59,082	14,666	73,748	88,084	161,832		
20-Year Average	7,266	2,200	9,466	9,248	18,715	23.4	12.0
1957-66 Average	8,624	2,933	11,558	9,689	21,247	22.0	13.1
1967-76 Average	5,908	1,467	7,375	8,808	16,183	24.8	11.0

1/ All catch and escapement figures in thousands of fish.
2/ Includes immature sockeye salmon caught in previous year.
3/ Includes Bristol Bay catch and escapement and Japenese catch.
4/ Preliminary.

APPENDIX TABLE 4. Japanese high seas catch of sockeye salmon of Bristol Bay origin, 1957-76. 1/

Year	Sockeye Salmon Catch		
	Matures 2/	Immatures 3/	Total
1957	6,444	11	6,455
58	366	33	399
59	565	87	652
60	3,640	310	3,950
61	5,819	127	5,946
1962	833	72	905
63	929	60	989
64	254	843	1,097
65	6,100	404	6,504
66	1,531	56	1,587
1967	866	21	887
68	864	791	1,655
69	1,240	517	1,757
70	3,451	1,207	4,658
71	842	593	1,435
1972	710	214	924
73	625	259	884
74 4/	264	573	837
75 4/	639	257	896
76 4/	677	252	929
20-Year Total	36,659	6,687	43,346
1957-66 Total	26,481	2,003	28,484
1967-76 Total	10,178	4,684	14,862
20-Year Average	1,833	334	2,167
1957-66 Average	2,648	200	2,848
1967-76 Average	1,018	468	1,486

1/ All figures in thousands of fish.
2/ Includes the May and June 1-10 catches east of 170° E., the June 11-20 catches east of 175° E, and the June 21-30 catches east of 180°.
3/ Includes sockeye salmon taken on high seas at times and in areas where immature Bristol Bay sockeye salmon are in large majority. These are mostly .2 ocean age fish that otherwise would be expected to mature and return to Bristol Bay as .3 ocean. Includes July and August catches east of 170° E, and June 21-30 catches between 170° E and 180°.
4/ Preliminary.

(Data Source: 24)

APPENDIX TABLE 5. Salmon catch by the Japanese mothership (MS) and landbased driftnet (LB) fisheries, 1957-76. 1/

Year	Sockeye		King		Chum		Pink		Coho		Total	
	MS	LB	MS	LB	MS	LB	MS	LB	MS	LB	MS	LB
1957	20,096	494	31	33	11,908	4,081	27,881	35,551	442	526	60,358	40,685
58	12,026	888	46	45	18,787	9,155	15,546	24,833	3,393	785	49,798	35,706
59	9,125	832	68	42	12,859	9,045	18,856	35,129	1,423	1,178	42,331	46,226
60	12,879	1,601	180	113	10,517	8,684	1,805	20,129	962	1,346	26,423	31,873
61	12,998	1,173	31	79	6,128	6,104	3,263	34,559	284	1,454	22,704	43,369
1962	10,590	154	122	124	6,372	7,577	1,139	14,021	1,532	1,289	19,755	23,165
63	8,903	18	87	102	5,850	7,538	6,732	31,255	1,895	1,492	23,475	40,405
64	7,097	108	410	195	8,641	8,956	2,281	17,247	3,535	1,624	21,964	28,130
65	12,038	159	185	93	6,036	8,330	4,429	29,142	1,177	1,913	23,865	39,637
66	7,254	703	208	112	8,562	11,848	2,553	16,032	469	1,458	19,046	30,153
1967	8,087	2,566	128	110	6,837	11,078	7,781	23,051	226	1,329	23,059	38,134
68	6,373	2,769	362	88	8,107	8,457	3,823	15,899	898	1,421	19,563	28,634
69	5,935	2,495	554	83	7,721	4,908	6,972	23,610	1,306	3,328	22,488	34,424
70	6,944	2,966	437	101	9,638	6,585	1,726	13,403	180	2,259	18,925	25,314
71	3,554	3,026	206	134	9,968	6,250	8,202	16,977	454	2,373	22,384	28,760
1972	3,184	3,711	261	103	13,373	8,598	3,795	14,839	614	2,421	21,227	29,672
73	2,613	3,308	119	162	7,857	7,614	12,018	20,650	989	3,794	23,596	35,528
74	2,282	3,155	361	186	9,283	12,179	7,756	11,242	1,085	3,559	20,767	30,321
75	2,171	2,969	162	135	7,367	11,480	14,654	15,347	356	3,550	24,710	33,481
76 2/	2,266	3/	283	3/	10,436	3/	7,207	3/	828	3/	21,020	3/
20-Year Total	156,415	33,370	4,241	2,058	185,955	160,734	158,499	441,172	22,048	37,391	527,458	674,725
1957-66 Total	113,006	5,702	1,368	844	95,668	71,737	84,565	270,122	15,112	11,899	309,719	360,304
1967-76 Total	43,409	27,668	2,873	1,214	90,587	88,997	73,934	171,050	6,936	25,492	217,739	314,421
20-Year Average	7,821	1,669	212	103	9,298	8,037	7,925	22,059	1,102	1,870	26,373	33,736
1957-66 Average	11,301	570	137	84	9,567	7,174	8,457	27,012	1,511	1,190	30,972	36,030
1967-76 Average	4,341	2,767	287	121	9,059	8,900	7,393	17,105	694	2,549	21,774	31,442

1/ All figures in thousands of fish.
2/ Preliminary.
3/ 1976 data on landbased fishery not available. 1956-75 information used for totals and averages.

(Data Source: 24)

APPENDIX TABLE 6. Commercial license statistics, Bristol Bay, 1960-76.

Category	1960	1961	1962	1963	1964	1965	1966	1967
COMMERCIAL FISHING LICENSES:								
Resident	1,422	2,112	1,993	2,258	2,494	2,124	2,763	1,862
Non-resident	745	1,506	933	1,344	1,231	1,674	1,501	1,560
TOTAL COMMERCIAL	2,167	3,618	2,926	3,602	3,725	3,798	4,264	3,422
VESSEL LICENSES:								
Fishing Vessels								
Resident								
To 25 feet						486	488	506
26-29 feet						305	301	271
30-32 feet						449	428	407
Sub-Total Resident	804	1,058	1,031	1,209	1,161	1,240	1,217	1,184
Non-Resident								
To 25 feet						110	188	154
26-29 feet						179	193	112
30-32 feet						401	502	510
Sub-Total Non-resident	350	665	386	581	605	690	883	776
Total Fishing Vessels	1,154	1,723	1,417	1,790	1,766	1,930	2,100	1,960
Scow/Tenders								
Resident	22	14	30	33	15	17	20	8
Non-resident	28	46	19	32	35	57	43	53
Sub-Total Scow/Tenders	50	60	49	65	50	74	63	61
TOTAL VESSELS	1,204	1,783	1,466	1,855	1,816	2,004	2,163	2,021
GEAR LICENSES:								
Drift								
Resident	650	780	791	914	947	916	1,019	965
Non-resident	364	638	400	545	689	677	846	734
Sub-Total Drift	1,014	1,418	1,191	1,459	1,636	1,593	1,865	1,699
Set								
Resident	345	496	619	773	793	868	826	686
Non-resident	0	10	20	116	137	125	139	144
Sub-Total Set	345	506	639	889	930	993	965	830
TOTAL GEAR	1,359	1,924	1,830	2,348	2,566	2,586	2,030	2,529
Total Licenses Sold	4,730	7,325	6,222	7,805	8,107	8,388	9,257	7,972
Total License Revenues Collected	$64,140	$105,330	$87,725	$92,250	$113,359	$130,405	$146,265	$153,820

(continued)

APPENDIX TABLE 6. (continued)

Category	1968 1/	1969 2/	1970	1971	1972	1973 3/	1974	1975 4/	1976
COMMERCIAL FISHING LICENSES:									
Resident	2,094	2,418	2,563	2,493	2,212	2,445	1,360	1,969	2,359
Non-resident	1,243	1,696	1,860	1,837	1,400	1,134	345	1,205	1,567
TOTAL COMMERCIAL	3,337	4,114	4,423	4,330	3,612	3,579	1,705	3,174	3,926
VESSEL LICENSES:									
Fishing Vessels									
Resident									
To 25 feet	438	531	600	585	498	375	304	382	415
26-29 feet	273	289	233	243	236	153	95	151	157
30-32 feet	447	421	455	400	370	411	323	449	415
Sub-Total Resident	1,158	1,241	1,288	1,228	1,104	939	722	982	987
Non-Resident									
To 25 feet	106	125	170	127	112	74	41	73	74
26-29 feet	108	127	169	137	119	93	41	92	97
30-32 feet	458	497	577	600	513	405	146	495	511
Sub-Total Non-resident	672	749	916	864	744	572	228	660	682
Total Fishing Vessels	1,830	1,990	2,204	2,092	1,848	1,511	950	1,642	1,669
Scow/Tenders									
Resident	9	17	22	9	13	20	8	17	11
Non-resident	20	51	37	59	47	41	13	26	33
Sub-Total Scow/Tenders	29	68	59	68	60	61	21	43	44
TOTAL VESSELS	1,859	2,058	2,263	2,160	1,908	1,572	971	1,685	1,713
GEAR LICENSES:									
Drift									
Resident	973	1,110	1,057	1,034	993	2,041	742	931	850
Non-resident	711	818	824	831	771	1,162	222	702	667
Sub-Total Drift	1,684	1,928	1,881	1,865	1,764	3,203	964	1,633	1,517
Set									
Resident	722	804	747	710	722	902	494	546	554
Non-resident	117	166	143	136	132	108	46	92	105
Sub-Total Set	839	970	890	846	854	1,010	540	638	659
TOTAL GEAR	2,523	2,898	2,771	2,711	2,618	4,213	1,504	2,271	2,176
Total Licenses Sold	7,719	9,070	9,457	9,201	8,138	9,364	4,180	7,130	7,815
Total License Revenues Collected	$127,085	$169,320	$179,985	$176,845	$152,780	$184,805	$61,535	$133,625	$147,430

1/ Maximum allowable licensed gear per license was 75 fathoms for drifters and 25 fathoms for set netters.
2/ Maximum allowable licensed gear per license was 125 fathoms for drifters and 50 fathoms for set netters.
3/ Maximum allowable licensed gear per license was 25 fathoms for drifters and 12-1/2 fathoms for set netters.
4/ Maximum allowable licensed gear per license was 75 fathoms for drifters and 25 fathoms for set netters.

(Data Source: 2)

APPENDIX TABLE 7. Estimated actual fishing effort by type of gear, Bristol Bay, 1957-76.

Year	Type of Gear and Allowable Fathoms				
	Drift	Fathoms/Boat	Set	Fathoms/Boat	Total
1957	1,143	150	239	50	1,382
58	1,457	150	218	50	1,675
59	737	150	102	50	839
60	911	150	244	50	1,155
61	1,146	150	309	50	1,455
1962	965	150	414	50	1,379
63	1,192	150	493	50	1,685
64	1,342	150	464	50	1,806
65	1,395	150	582	50	1,977
66	1,715	150	549	50	2,264
1967	1,555	150	439	50	1,994
68	1,237	75	493	25	1,730
69	1,633	125	511	50	2,144
70	1,674	150	623	50	2,297
71	1,710	150	421	50	2,131
1972	1,467	150	490	50	1,957
73 1/	953	Variable	542	Variable	1,495
74 1/	659	Variable	214	Variable	873
75 1/	1,322	75	496	25	1,818
76 2/	1,200	150	390	50	1,590
20-Year Total	25,413		8,233		33,646
1957-66 Total	12,003		3,614		15,617
1967-76 Total	13,410		4,619		18,029
20-Year Average	1,271		412		1,683
1957-66 Average	1,200		361		1,561
1967-76 Average	1,341		462		1,803

1/ Sliding gear schedule regulation in effect.
2/ Preliminary.

(Data Sources: 1, 5 and 29)

APPENDIX TABLE 8. Fishing vessel registration by district and year, Bristol Bay, 1965-76

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1965	826	301	146	563	94	1,930
66	983	327	156	581	53	2,100
67	779	331	134	618	98	1,960
68	757	348	106	521	98	1,830
69	849	280	92	664	105	1,990
1970	1,064	286	90	595	169	2,204
71	1,018	337	113	535	89	2,092
72	869	276	105	513	85	1,848
73	687	223	60	462	79	1,511
74	328	85	24	412	101	950
1975	753	254	26	516	93	1,642
76	760	237	53	511	107	1,668
12-Year Total	9,673	3,285	1,105	6,491	1,171	21,725
12-Year Average	806	274	92	541	98	1,811

(Data Source: 2)

APPENDIX TABLE 9. Sockeye salmon catch, by district, Bristol Bay, 1957-76.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1957	4,578,643	814,459	350,858	491,498	40,044	6,275,502
58	922,611	500,684	433,813	1,092,156	36,402	2,985,666
59	1,689,425	662,391	423,414	1,719,687	113,202	4,608,119
60	9,847,848	1,446,884	752,634	1,517,988	139,648	13,705,002
61	8,166,983	2,686,076	357,223	511,483	192,161	11,913,926
1962	2,281,284	638,862	243,159	1,461,766	92,945	4,718,016
63	957,902	695,582	188,695	842,744	186,213	2,871,136
64	2,243,701	1,103,935	576,768	1,420,941	250,775	5,596,120
65	19,139,567	3,179,559	925,690	793,323	217,100	24,255,239
66	5,397,538	2,101,174	445,458	1,170,271	199,799	9,314,240
1967	2,337,226	1,070,942	163,744	657,711	101,107	4,330,730
68	1,216,858	671,554	82,457	749,281	72,699	2,792,849
69	4,655,072	889,322	169,845	773,207	134,252	6,621,698
70	17,803,805	1,403,509	171,541	1,188,534	153,377	20,720,766
71	5,857,378	1,306,682	954,068	1,256,799	209,060	9,583,987
1972	1,102,365	839,820	17,440	381,347	75,261	2,416,233
73	168,249	221,337	3,920	272,093	95,723	761,322
74	538,163	172,253	2,151	510,571	139,341	1,362,479
75	3,085,416	964,024	14,558	645,902	188,914	4,898,814
76 1/	2,577,291	1,304,596	185,812	1,225,826	299,367	5,592,892
20-Yr.Tot.	94,567,325	22,673,645	6,463,248	18,683,128	2,937,390	145,324,736
1957-66 Tot.	55,225,502	13,829,606	4,697,712	11,021,857	1,468,289	86,242,966
1967-76 Tot.	39,341,823	8,844,039	1,765,536	7,661,271	1,469,101	59,081,770
20-Yr. Av.	4,728,366	1,133,682	323,162	934,156	146,870	7,266,237
1957-66 Av.	5,522,550	1,382,961	469,771	1,102,186	146,829	8,624,297
1967-76 Av.	3,934,182	884,404	176,554	766,127	146,910	5,908,177

1/ Preliminary.

(Data Sources: 1, 5 and 28)

PPENDIX TABLE 10. King salmon catch, by district, Bristol Bay, 1957-76.

ear	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1957	5,524	4,139	883	79,122	1,752	91,420
58	8,391	3,155	2,368	87,245	2,048	103,207
59	15,298	3,282	5,493	54,299	5,917	84,289
60	17,778	2,991	2,209	81,416	7,309	111,703
61	10,206	3,266	3,483	60,953	10,748	88,656
1962	8,816	2,070	2,929	61,283	8,949	84,047
63	4,713	2,355	3,030	45,979	6,192	62,269
64	12,902	3,618	3,694	108,606	10,716	139,536
65	9,793	2,313	4,042	85,910	10,909	112,967
66	5,456	1,949	1,916	58,184	9,967	77,472
1967	3,705	2,285	1,582	96,240	13,381	117,193
68	6,398	3,472	2,153	78,201	13,499	103,723
69	19,016	2,801	2,107	80,803	20,181	124,908
70	19,037	3,765	1,498	87,547	28,664	140,511
71	10,254	2,187	779	82,769	27,026	123,015
972	2,262	1,097	166	46,045	19,976	69,546
73	951	1,475	292	30,470	10,856	44,044
74	480	1,133	1,200	32,053	10,798	45,664
75	964	237	111	21,454	7,226	29,992
76 1/	2,979	1,248	233	60,573	29,668	94,701
20-Year Total	164,923	48,838	40,168	1,339,152	255,782	1,848,863
1957-66 Total	98,877	29,138	30,047	722,997	74,507	955,566
967-76 Total	66,046	19,700	10,121	616,155	181,275	893,297
20-Year Average	8,246	2,442	2,008	66,958	12,789	92,443
957-66 Average	9,888	2,914	3,005	72,300	7,451	95,557
966-76 Average	6,605	1,970	1,012	61,616	18,128	89,330

1/ Preliminary.

(Data Sources: 1, 5, and 28)

APPENDIX TABLE 11. Chum salmon catch, by district, Bristol Bay, 1957-76.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1957	45,620	12,849	13,226	143,461	44,186	259,342
58	119,324	12,089	12,714	193,688	20,277	358,092
59	200,458	29,407	20,185	186,891	44,575	481,516
60	304,286	62,837	51,415	642,099	255,320	1,315,957
61	182,398	57,429	30,928	267,176	190,001	727,932
1962	176,712	23,053	22,040	290,633	165,107	677,545
63	100,408	14,807	10,554	167,161	77,167	370,097
64	153,644	23,496	30,688	463,309	131,371	802,508
65	45,430	11,188	14,971	177,434	111,521	360,544
66	57,273	32,085	29,100	129,344	95,410	343,212
1967	49,606	11,039	14,104	338,286	63,322	476,357
68	43,187	16,193	17,624	178,786	108,001	363,791
69	42,535	7,835	1,995	214,235	66,389	332,989
70	120,279	43,854	17,969	435,033	100,711	717,846
71	151,465	27,073	14,506	360,015	123,847	676,906
1972	115,737	42,172	9,689	310,126	178,885	656,609
73	123,610	23,034	6,092	336,331	195,431	684,498
74	41,347	4,022	2,334	157,941	80,710	286,354
75	79,740	4,094	1,634	152,891	87,058	325,417
76 1/	321,658	47,953	10,280	836,530	152,072	1,368,493
20-Year Total	2,474,717	506,509	332,048	5,981,370	2,291,361	11,586,005
1957-66 Total	1,385,553	279,240	235,821	2,661,196	1,134,935	5,696,745
1967-76 Total	1,089,164	227,269	96,227	3,320,174	1,156,426	5,889,260
20-Year Average	123,736	25,325	16,602	299,069	114,568	579,300
1957-66 Average	138,555	27,924	23,582	266,120	113,494	569,675
1967-76 Average	108,916	22,727	9,623	332,017	115,643	588,926

1/ Preliminary.

(Data Sources: 1, 5 and 28)

APPENDIX TABLE 12. Pink salmon catch, by district, Bristol Bay, 1957-76.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1957	2	24	-	3	-	29
58	19,666	492	-	1,113,794	1,590	1,135,542
59	25	6	78	137	55	301
60	10,582	-	-	289,781	1,669	302,032
61	42	3	-	248	245	538
1962	32,436	43	1	880,424	1,030	913,934
63	56	1	2	226	176	461
64	49,127	606	18	1,497,817	2,001	1,549,569
65	514	-	-	95	91	700
66	142,221	8	11	2,337,066	13,545	2,492,851
1967	20	-	-	265	829	1,114
68	218,732	211	-	1,705,150	11,743	1,935,836
69	205	5	1	263	1,396	1,870
70	28,301	41	-	417,834	10,735	456,911
71	2	-	-	37	173	212
1972	57,074	12	-	67,953	1,984	127,023
73	109	-	1	61	216	387
74	508,534	4,405	340	413,613	13,086	939,978
75	6	9	2	126	279	422
76 1/	260,527	4,100	-	741,050	27,571	1,033,248
20-Year Tot. 2/	1,327,200	9,918	370	9,464,482	84,954	10,886,924
1957-66 Tot. 2/	254,032	1,149	30	6,118,882	19,835	6,393,928
1967-76 Tot. 2/	1,073,168	8,769	340	3,345,600	65,119	4,492,996
20-Year Av. 2/	132,720	992	37	946,448	8,495	1,088,692
1957-66 Av. 2/	50,806	230	6	1,223,776	3,967	1,278,786
1967-76 Av. 2/	214,634	1,754	68	669,120	13,024	898,599

1/ Preliminary.
2/ Includes only even-numbered years.

(Data Sources: 1, 5 and 28)

APPENDIX TABLE 13. Coho salmon catch, by district, Bristol Bay, 1957-76.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1957	1,619	4,056	-	61,454	1,616	68,745
58	3,624	4,370	746	127,088	-	135,828
59	40	1,388	1,397	12,779	1,731	17,335
60	197	2,421	-	13,457	65	16,140
61	426	3,533	16	16,653	5	20,633
1962	2,474	3,828	4,553	28,418	11	39,284
63	6,823	910	2,743	29,648	1,138	41,262
64	3,133	775	380	26,416	5,859	36,563
65	3,053	945	713	2,851	521	8,083
66	4,096	1,932	533	11,517	15,864	33,942
1967	1,175	1,044	1,901	31,517	18,159	53,796
68	7,357	6,507	5,771	48,867	24,872	93,374
69	17	5,548	9,292	37,799	28,720	81,376
70	53	7,027	1,695	3,688	2,027	14,490
71	89	923	469	8,036	3,192	12,709
1972	402	1,249	-	3,654	8,652	13,957
73	255	2,701	2,307	28,709	23,070	57,042
74	916	1,156	4,055	12,569	25,049	43,745
75	43	951	4,595	7,342	33,350	46,281
76 1/	445	1,338	388	6,782	12,660	21,613
20-Year Total	36,237	52,602	41,554	519,244	206,561	856,198
1957-66 Total	25,485	24,158	11,081	330,281	26,810	417,815
1967-76 Total	10,752	28,444	30,473	188,963	179,751	438,383
20-Year Average	1,812	2,630	2,444	25,962	10,872	42,810
1957-66 Average	2,549	2,416	1,385	33,028	2,979	41,782
1967-76 Average	1,075	2,844	3,047	18,896	17,975	43,838

1/ Preliminary.

(Data Source: 1, 5 and 28)

APPENDIX TABLE 14. Total salmon catch, all species, by district, Bristol Bay, 1957-76.

Year	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1957	4,631,408	835,527	364,967	775,538	87,598	6,695,038
58	1,073,616	520,790	449,641	2,613,971	60,317	4,718,335
59	1,905,246	696,474	450,567	1,973,793	165,480	5,191,560
60	10,180,691	1,515,133	806,258	2,544,741	404,011	15,450,834
61	8,360,055	2,750,307	391,650	856,513	393,160	12,751,685
1962	2,501,722	667,856	272,682	2,722,524	268,042	6,432,826
63	1,069,902	713,655	205,024	1,085,758	270,886	3,345,225
64	2,462,507	1,132,430	611,548	3,517,089	400,722	8,124,296
65	19,198,357	3,194,005	945,416	1,059,613	340,142	24,737,533
66	5,606,584	2,137,148	477,018	3,706,382	334,585	12,261,717
1967	2,391,732	1,085,310	181,331	1,124,019	196,798	4,979,190
68	1,492,532	697,937	108,005	2,760,285	230,814	5,289,573
69	4,716,845	905,511	183,240	1,106,307	250,938	7,162,841
70	17,971,475	1,458,196	192,703	2,132,636	295,514	22,050,524
71	6,019,188	1,336,865	969,822	1,707,656	363,298	10,396,829
1972	1,277,840	884,350	27,295	809,125	284,758	3,283,368
73	293,174	248,547	12,612	667,664	325,296	1,547,293
74	1,089,440	182,969	10,080	1,126,747	268,984	2,678,220
75	3,166,169	969,315	20,900	827,715	316,827	5,300,926
76 1/	3,162,900	1,359,235	196,713	2,870,761	521,338	8,110,947
20-Yr.Tot.	98,571,383	23,291,560	6,877,472	35,988,837	5,779,508	170,508,760
1957-66 Tot.	56,990,088	14,163,325	4,974,771	20,855,922	2,724,943	99,709,049
1967-76 Tot.	41,581,295	9,128,235	1,902,701	15,132,915	3,054,565	70,799,711
20-Yr. Av.	4,928,569	1,164,578	343,874	1,799,442	288,975	8,525,438
1957-66 Av.	5,699,009	1,416,333	497,477	2,085,592	272,494	9,970,905
1967-76 Av.	4,158,130	912,824	190,270	1,513,292	305,457	7,079,971

1/ Preliminary

(Data Source: 1, 5 and 28)

APPENDIX TABLE 15. Commercial catch by species and type of gear, Bristol Bay, 1956-75.

Year	Type Gear	Commercial Catch and Percent by Species											
		Sockeye	%	King	%	Chum	%	Pink	%	Coho	%	Total	%
1956	Drift	8,098,397	91	63,939	96	298,094	94	72,911	79	53,205	84	8,586,546	91
	Set	783,070	9	2,438	4	17,423	6	19,061	21	10,254	16	832,246	9
	TOTAL	8,881,467		66,377		315,517		91,972		63,459		9,418,792	
1957	Drift	5,916,811	94	89,615	98	253,013	98	2	7	63,350	92	6,322,791	94
	Set	358,691	6	1,805	2	6,329	2	27	93	5,395	8	372,247	6
	TOTAL	6,275,502		91,420		259,342		29		68,745		6,695,038	
1958	Drift	2,765,251	93	101,290	98	345,260	96	895,219	79	120,302	89	4,227,322	90
	Set	220,415	7	1,917	2	12,832	4	240,323	21	15,526	11	491,013	10
	TOTAL	2,985,666		103,207		358,092		1,135,542		135,828		4,718,335	
1959	Drift	4,065,995	88	79,644	94	422,086	88	187	62	6,341	37	4,574,253	88
	Set	542,124	12	4,645	6	59,430	12	114	38	10,994	63	617,307	12
	TOTAL	4,608,119		84,289		481,516		301		17,335		5,191,560	
1960	Drift	12,747,132	93	107,138	96	1,178,351	90	200,303	66	5,612	35	14,238,536	92
	Set	957,870	7	4,565	4	137,606	10	101,729	34	10,528	65	1,212,298	8
	TOTAL	13,705,002		111,703		1,315,957		302,032		16,140		15,450,834	
1961	Drift	11,171,226	94	83,800	95	685,033	94	342	64	8,016	39	11,949,217	94
	Set	742,700	6	4,856	5	42,099	6	196	36	12,617	61	802,468	6
	TOTAL	11,913,926		88,656		727,932		538		20,633		12,751,685	
1962	Drift	3,941,097	84	78,486	93	609,396	90	776,392	85	25,424	65	5,430,795	84
	Set	776,919	16	5,561	7	68,149	10	137,542	15	13,860	35	1,002,031	16
	TOTAL	4,718,016		84,047		677,545		913,934		39,284		6,432,826	
1963	Drift	2,470,038	86	57,647	93	315,324	85	243	53	19,495	47	2,862,747	86
	Set	401,098	14	4,622	7	54,773	15	218	47	21,767	53	482,478	14
	TOTAL	2,871,136		62,269		370,097		461		41,262		3,345,225	
1964	Drift	4,002,031	86	131,108	94	694,089	86	1,359,747	88	25,544	70	7,012,519	86
	Set	794,089	14	8,428	6	108,419	14	189,822	12	11,019	30	1,111,777	14
	TOTAL	5,596,120		139,536		802,508		1,549,569		36,563		8,124,296	

(continued)

APPENDIX TABLE 15. (continued)

Year	Type Gear	Commercial Catch and Percent by Species											
		Sockeye	%	King	%	Chum	%	Pink	%	Coho	%	Total	%
1965	Drift	22,366,334	92	106,511	94	317,268	88	613	88	4,514	56	22,795,237	92
	Set	1,188,905	8	6,456	6	43,279	12	87	12	3,569	44	1,942,296	8
	TOTAL	24,255,239		112,967		360,544		700		8,083		24,737,533	
1966	Drift	8,293,143	89	73,602	95	297,942	87	2,223,891	89	25,071	76	10,914,449	89
	Set	1,021,097	11	3,870	5	45,270	13	268,960	11	8,071	24	1,347,268	11
	TOTAL	9,314,240		77,472		343,212		2,492,851		33,942		12,261,717	
1967	Drift	3,870,379	89	113,234	97	454,942	96	827	74	43,763	81	4,483,145	90
	Set	460,351	11	3,959	3	21,415	4	287	26	10,033	19	496,045	10
	TOTAL	4,330,730		117,193		476,357		1,114		53,796		4,979,190	
1968	Drift	2,524,950	90	101,137	98	345,133	95	1,715,761	89	70,808	76	4,757,789	90
	Set	267,899	10	2,586	2	18,658	5	220,075	11	22,566	24	531,784	10
	TOTAL	2,792,849		103,723		363,791		1,935,836		93,374		5,289,573	
1969	Drift	5,844,530	88	119,631	96	315,977	95	1,574	84	60,829	75	6,342,541	89
	Set	777,168	22	5,277	4	17,012	5	296	16	20,547	25	820,300	11
	TOTAL	6,621,698		124,908		332,989		1,870		81,376		7,162,841	
1970	Drift	19,351,116	93	132,576	94	678,896	94	375,522	82	6,478	45	20,544,588	93
	Set	1,369,650	7	7,935	6	38,950	6	81,389	18	8,012	55	1,505,936	7
	TOTAL	20,720,766		140,511		717,846		456,911		14,490		22,050,524	
1971	Drift	8,587,924	90	119,066	98	634,699	94	180	85	8,183	64	9,350,052	90
	Set	996,063	10	3,949	2	42,207	6	32	15	4,526	36	1,046,777	10
	TOTAL	9,583,987		123,015		676,906		212		12,709		10,396,029	
1972	Drift	2,254,697	93	67,832	98	625,508	95	95,415	75	11,701	84	3,055,153	93
	Set	161,536	7	1,714	2	31,101	5	31,608	25	2,256	16	228,215	7
	TOTAL	2,416,233		69,546		656,609		127,023		13,957		3,283,368	
1973	Drift	697,693	92	42,514	97	650,676	96	331	86	42,930	75	1,442,143	93
	Set	63,630	8	1,530	3	29,822	4	56	14	14,112	25	105,150	7
	TOTAL	761,322		44,044		684,498		387		57,042		1,547,293	
1974	Drift	1,072,736	79	44,294	97	271,960	95	835,339	89	32,800	75	2,257,129	84
	Set	289,743	21	1,370	3	14,394	5	104,639	11	10,945	25	421,091	16
	TOTAL	1,362,479		45,664		286,354		939,978		43,745		2,678,220	
1975	Drift	4,458,157	91	28,862	96	305,405	94	259	61	37,136	80	4,829,819	91
	Set	440,657	9	1,130	4	20,012	6	163	39	9,145	20	471,107	9
	TOTAL	4,898,814		29,992		325,417		422		46,281		5,300,926	

(continued)

APPENDIX TABLE 15. (continued)

Year	Type Gear	Commercial Catch and Percent by Species													
		Sockeye	%	King	%	Chum	%	Pink	%	Coho	%	Total	%
Total	Drift	135,299,636	91	1,741,926	96	9,707,849	92	8,550,500	86	672,326	75	155,976,771	91
1956-75	Set	13,313,675	9	77,483	4	829,180	8	1,395,148	14	225,742	25	15,839,834	9
	TOTAL	148,613,311		1,819,409		10,537,029		9,945,648 1/		898,068		171,816,605	
Total	Drift	78,344,312	91	899,178	95	5,118,711	90	3,304,572	83	331,803	74	87,999,963	91
1956-65	Set	7,465,881	9	45,293	5	550,339	10	688,477	17	115,529	26	8,866,161	9
	TOTAL	85,810,193		944,471		5,669,050		3,993,049 1/		447,332		96,866,124	
Total	Drift	56,955,324	91	842,748	96	4,589,138	94	5,245,928	88	340,523	76	67,976,808	91
1966-75	Set	5,847,794	9	32,190	4	278,841	6	706,671	12	110,213	24	6,973,673	9
	TOTAL	62,803,118		874,938		4,867,979		5,952,599 1/		450,736		74,950,481	
Av.	Drift	6,764,982	91	87,096	96	485,392	92	855,050	86	33,616	75	7,798,839	91
1956-75	Set	665,684	9	3,874	4	41,459	8	139,515	14	11,287	25	791,992	9
	TOTAL	7,430,666		90,970		526,851		994,565 1/		44,903		8,590,831	
Av.	Drift	7,834,431	91	89,918	95	511,871	90	660,914	83	33,180	74	8,799,996	91
1956-65	Set	746,588	9	4,529	5	55,034	10	137,695	17	11,553	26	886,616	9
	TOTAL	8,581,019		94,447		566,905		798,610 1/		44,733		9,686,612	
Av.	Drift	5,695,532	91	84,275	96	458,914	94	1,049,186	88	34,052	76	6,797,681	91
1966-75	Set	584,779	9	3,219	4	27,884	6	141,334	12	11,021	24	697,367	9
	TOTAL	6,280,311		87,494		486,798		1,190,520 1/		45,073		7,495,048	

1/ Even-years only.

(Data Sources: 5 and 29)

APPENDIX TABLE 16. Case pack by species, Bristol Bay, 1957-76.

Year	48 1-lb. Cans Per Case					
	Sockeye	King	Chum	Pink	Coho	Total
1957	471,979	16,285	23,940	0	4,220	516,424
58	241,099	24,844	34,954	61,740	10,555	373,192
59	332,713	17,364	42,812	0	2,582	395,471
60	854,807	19,566	103,569	12,055	3,073	993,070
61	926,441	15,501	51,828	0	1,980	995,750
1962	361,226	16,797	58,571	38,638	2,941	478,173
63	217,901	9,495	34,157	2	4,296	265,851
64	372,928	25,677	70,523	67,431	5,024	541,583
65	1,447,771	24,248	31,826	0	338	1,504,183
66	737,948	14,850	28,814	95,071	2,345	879,028
1967	334,177	19,499	45,321	8	3,100	402,105
68	229,514	12,971	36,638	63,011	4,321	346,455
69	457,911	17,860	30,997	33	2,198	508,999
70	1,117,163	19,401	58,766	16,772	802	1,212,904
71	694,199	23,118	56,852	0	437	774,606
1972	197,495	9,666	53,756	5,002	547	266,466
73	61,429	1,946	42,044	0	1,456	106,875
74	87,723	6,461	23,789	39,550	7,012	164,535
75	290,646	1,920	22,667	0	373	315,606
76 1/	393,698	6,889	104,935	36,616	1,068	543,206
20-Year Total	9,828,768	304,358	956,759	435,929	58,668	11,584,482
1957-66 Total	5,964,813	184,627	480,994	274,937	37,354	6,942,725
1967-76 Total	3,863,955	119,731	475,765	160,992	21,314	4,641,757
20-Year Average	491,438	15,218	47,838	43,589 2/	2,933	579,224
1957-66 Average	596,481	18,463	48,099	54,987 2/	3,735	694,273
1967-76 Average	386,396	11,973	47,577	32,190 2/	2,131	464,176

1/ Preliminary data from "Final Operations Report" for Bristol Bay (BB-CF 303). Includes only fish canned in Bristol Bay.
2/ Even-years only.

(Data Sources: 1,4 and 22)

APPENDIX TABLE 17. Commercial production of fresh, frozen and cured fish by species, in pounds, Bristol Bay, 1960-76. 1/

Year	Production in pounds of fish					
	Sockeye	King	Chum	Pink	Coho	Total
1960	1,676,616	84,476	197,774	35	5,628	1,964,529
61	2,218,418	192,965	36,756	25	43,350	2,491,514
62	162,652	154,284	44,873	10	57,582	419,401
63	196,305	134,257	81,446	10	40,406	452,424
64	485,399	123,629	29,877	828	53,736	693,469
1965	385,866	50,239	4,466	0	11,674	452,245
66	270,529	36,524	110,040	12	120,608	537,713
67	213,179	434,406	71,896	0	171,710	891,191
68	319,010	401,560	127,254	1,504	272,003	1,121,331
69	751,691	822,766	380,230	133	417,000	2,371,820
1970	3,272,474	874,226	262,960	33,877	14,076	4,457,613
71	1,827,786	737,688	128,166	12	46,607	2,740,259
72	85,851	726,145	75,522	822	57,692	946,032
73	373,961	888,411	574,409	194	249,914	2,086,889
74	426,331	540,918	44,819	217,536	20,228	1,249,832
1975	384,260	336,803	183,735	45	388,084	1,292,927
76	1,385,844	1,016,285	376,238	311,214	140,162	3,229,743
17-Year Total	14,436,172	7,555,582	2,730,461	566,257	2,110,460	27,398,932
1960-69 Total	6,679,665	2,435,106	1,084,612	2,557	1,193,697	11,395,637
1970-76 Total	7,756,507	5,120,476	1,645,849	563,700	916,763	16,003,295
17-Year Average	849,187	444,446	160,615	62,871 2/	124,145	1,611,702
1960-69 Average	667,967	243,511	108,461	478 2/	119,370	1,139,564
1970-76 Average	1,108,072	731,497	235,121	77,804 2/	130,966	2,286,185

1/ Includes fresh, frozen, salted and mild cured fish exclusive of those fish shipped out of Bristol Bay for processing.
2/ Even-years only.

(Data Source: 3)

APPENDIX TABLE 18. Salmon transported out of Bristol Bay for processing, 1969-76. 1/

Year	Number of Fish					
	Sockeye	King	Chum	Pink	Coho	Total
1960	298,030	260	5,271	-	-	303,561
61	357,602	120	15,255	844	-	373,821
62	196,025	70	17,618	-	-	213,713
63	81,077	60	6,691	-	-	87,828
64	187,592	154	3,677	-	-	191,423
1965	991,526	30	3,410	-	-	994,966
66	315,178	149	2,613	71,425	230	389,565
67	126,593	90	1,135	-	-	127,818
68	62,462	13	3,334	31,471	124	97,404
69	295,182	845	1,946	-	-	297,973
1970	2,969,487	11,247	21,936	-	-	3,002,670
71	531,094	11,648	12,015	-	-	554,757
72	62,564	18,679	3,681	-	2,571	87,495
73	18,848	7,746	36,894	-	16,905	80,393
74	293,760	1,783	27,664	133,110	12,197	468,514
1975	1,114,271	4,390	24,629	-	26,759	1,170,049
76 2/	813,940	5,774	55,908	10,363	12,916	898,901
17-Year Total	8,715,231	63,058	243,677	247,213	71,702	9,340,881
1960-69 Total	2,911,267	1,791	60,950	103,740	354	3,078,102
1970-76 Total	5,803,964	61,267	182,727	143,473	71,348	6,262,779
17-Year Average	512,661	3,709	14,334	14,542	4,218	549,464
1960-69 Average	291,127	179	6,095	10,374	35	307,810
1970-76 Average	829,138	8,752	26,104	20,496	10,193	894,683

1/ Includes only fish exported from Bristol Bay in fresh or brined condition by either air transportation or sea-going tender.
2/ Preliminary.

(Data Source: 3)

APPENDIX TABLE 19. Fish per case, by species, Bristol Bay, 1957-76. 1/

Year	Fish per case				
	Sockeye	King	Chum	Pink 2/	Coho
1957	11.79	3.81	10.21	-	-
58	12.30	4.20	9.40	18.20	12.80
59	12.80	4.10	11.40	-	7.80
60	14.58	6.19	12.58	17.27	11.34
61	11.93	4.43	11.25	-	7.39
1962	12.45	4.66	11.47	25.80	12.10
63	12.15	5.49	11.36	-	12.21
64	13.57	5.31	11.01	25.58	12.58
65	15.75	4.28	12.31	-	9.08
66	12.06	4.52	11.33	26.92	11.90
1967	12.37	4.27	11.69	-	12.56
68	12.34	4.20	11.17	26.86	11.71
69	14.18	4.70	12.78	-	13.05
70	15.01	5.11	13.02	26.00	11.73
71	12.62	3.99	11.83	-	11.07
1972	12.35	4.46	12.00	26.76	12.28
73	10.57	4.23	11.27	-	12.33
74	12.38	3.91	12.04	19.52	9.64
75	13.18	5.02	12.69	-	10.19
76	11.84	5.06	11.72	24.04	10.06
20-Year Total	25,622	9,194	23,253	23,695	21,182
1957-66 Total	12,938	4,699	11,232	11,377	9,720
1967-76 Total	12,684	4,495	12,021	12,318	11,462
20-Year Average	12.81	4.60	11.63	23.70	11.15
1957-66 Average	12.94	4.70	11.23	22.75	10.80
1967-76 Average	12.68	4.50	12.02	24.64	11.46

1/ Mesh size dropped to 5-3/8 inches in 1962, previously it had been 5-1/2 inches.
2/ Even-years only.

(Data Source: 1 and 28)

APPENDIX TABLE 20. Fish prices paid to fishermen, by species, Bristol Bay, 1960-76. 1/

Species	Price per fish								Price per pound							
	1960	1961	1962	1963	1964/65	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975 4/5/	1976 6/
						INDEPENDENT FISHERMEN									AIFMA	
Sockeye	.95	1.00	1.04	1.08	1.09	1.13	1.18	1.18	.24	.24	.26	.27	.35	.48	.37	.52
King																
Large	3.50	3.68	3.75	3.75	3.75	3.87	3.87	3.87				.20 2/	.28 2/	.33 2/	.35 2/	.45 2/
Medium	1.75	1.84	1.87	1.87	1.87	1.94	1.94	1.94	.18	.18	.20 2/					
Small	-	1.00	1.00	1.00	1.00	1.00	1.03	1.03								
Chum	.51	.54	.56	.58	.58	.60	.60	.60	.11	.11	.12	.12	.18	.30	.18	.32
Pink	.29	.30	.31	.32	.32	.33	.33	.33	.11	.11	.12	.12	.18	.28	.19	.31
Coho	.95	1.00	1.04	1.08	1.09	1.13	1.18	1.18	.18	.18	.20 3/	.20 3/	.30 3/	.41	-	.405
						COMPANY FISHERMEN									WACMA	
Sockeye	.58	.62	.64	.67	.67	.70	.73	.74	.14	.14	.16	.17	.22	.30	.45	.475
King																
Large	2.53	2.66	2.70	2.70	2.70	2.40	2.78	2.78								
Medium	(2/1)	(2/1)	(2/1)	(2/1)	(2/1)	1.20	1.39	1.39	.11	.11	.12	.13	.18	.21	.35 2/	.40 2/
Small						.64	.69	.69								
Chum	.33	.34	.36	.37	.37	.37	.37	.37	.06	.06	.08	.08	.11	.19	.30	.32
Pink	.16	-	-	-	-	.20	.17	.17	.06	.06	.08	.13	.11	.18	.28	.308
Coho	.58	.62	.64	.67	.67	.70	.73	.74	.14	.14	.16	.13	.19	.26	.38 3/	.405 3/

1/ Prices listed in dollars and rounded to nearest cent.
2/ Price is for fish to be canned. Price for fish to be frozen (caught before June 26) is .24 in 1971 and 1972. Price floated between .28 and .33 in 1973 (depending on operator and quality of fish). Price for fish to be frozen is .45 in 1974. WACMA price .40 before June 23 in 1975 and .41 after June 21 in 1976 for both unions.
3/ Prior to July 19 price is .26 in 1971; .27 in 1972; .35 in 1973; .45 prior to July 21 in 1975 and .475 in 1976.
4/ "Company Fishermen" classification no longer applicable. All fishermen are hereafter considered to be independent and the majority negotiated prices with the processors through the two active fishermen's groups in Bristol Bay (AIFMA - Alaska Independent Fishermen's Marketing Assn.; and WACMA Western Alaska Cooperative Marketing Assn.)
5/ Prices for AIFMA members represent only a base level geared to the wholesale value of canned salmon with the possibility of additional payment.
6/ Prices for AIFMA members represent fixed prices, however fishermen had the individual option of a lower base level price geared to the wholesale value of canned salmon with the possibility of additional payment.

(Data Source: 9)

APPENDIX TABLE 21. Exvessel value of commercial salmon harvest by species, Bristol Bay, 1960-76. 1/

Year	Estimated Exvessel Value in Thousands of Dollars 2/					
	Sockeye	King	Chum	Pink	Coho	Total
1960	$ 13,020	$ 342	$ 671	$ 88	$ 15	$ 14,136
61	11,914	285	393	+	21	12,613
62	4,907	276	379	283	41	5,886
63	3,101	204	215	+	45	3,565
64	6,100	458	465	496	40	7,559
1965	26,438	371	209	+	9	27,027
66	10,525	262	206	823	38	11,854
67	5,110	336	286	+	63	5,795
68	3,296	357	218	639	110	4,620
69	8,423	443	216	+	103	9,185
1970	24,368	465	466	151	18	25,468
71	14,951	652	528	+	16	16,147
72	3,914	339	512	47	20	4,832
73	1,892	284	829	+	115	3,120
74	3,793	460	567	1,053	142	6,015
1975	11,047	214	615	+	151	12,027
76 3/	17,058	724	2,978	1,089	67	21,916
17-Yr. Tot.	169,857	6,472	9,753	4,669 4/	1,014	191,765
1960-69 Tot.	92,834	3,334	3,258	2,329	485	102,240
1970-76 Tot.	77,023	3,138	6,495	2,340	529	89,525
17-Yr. Av.	9,992	381	574	519 4/	60	11,280
1960-69 Av.	9,283	333	326	466	49	10,224
1970-76 Av.	11,003	448	928	585	76	12,789

1/ Value paid to the fishermen.
2/ Exvessel value derived from price per fish or pounds times commercial harvest.
3/ Preliminary.
4/ Includes even-years only.

(Data Sources: 1,5, 9 and 13)

APPENDIX TABLE 22. Wholesale value of case pack by species, Bristol Bay, 1957-76. 1/

Year	Estimated Wholesale Value in Thousands of Dollars					
	Sockeye	King	Chum	Pink	Coho	Total
1957	$ 15,811	$ 464	$ 479	$ -	$ 116	$ 16,870
58	8,197	708	594	1,297	290	11,086
59	12,144	512	899	-	79	13,634
60	31,201	616	2,330	295	95	34,537
61	34,929	561	1,474	15	75	37,054
1962	12,403	524	1,521	1,023	106	15,577
63	8,994	291	762	-	152	10,199
64	11,061	795	1,415	1,695	116	15,082
65	54,093	740	717	-	11	55,561
66	27,079	453	721	2,662	69	30,984
1967	14,859	713	1,284	-	127	16,983
68	9,252	441	1,055	2,016	320	13,084
69	19,525	620	858	1	76	21,080
70	48,250	721	1,687	548	30	51,236
71	29,746	872	1,737	-	16	32,371
1972	10,088	372	1,842	200	21	12,523
73	4,714	112 2/	2,038	-	84	6,948
74	9,589	530 2/	1,557	2,807	575	15,058
75	24,164	142 2/	1,352	-	28	25,686
76 3/	32,543	499 2/	6,282	2,513	77	41,914
20-Year Total	418,642	10,686	30,604	15,056 4/	2,463	477,467
1957-66 Total	215,912	5,664	10,912	6,972	1,109	240,584
1967-76 Total	202,730	5,022	19,692	8,084	1,354	236,883
20-Year Average	20,932	534	1,530	1,506 4/	123	23,873
1957-66 Average	21,591	566	1,091	1,394	111	24,058
1967-76 Average	20,273	502	1,969	1,617	135	23,688

1/ Includes only fish canned in Bristol Bay; value in thousands rounded to nearest $1,000.
2/ Prices not quoted; estimates based on value of coho salmon case pack.
3/ Preliminary.
4/ Includes even-years only.

(Data Sources: 1, 4, 22, 25 and 26)

APPENDIX TABLE 23. Wholesale value of all fishery products, Bristol Bay, 1960-76. 1/

Year	Estimated Wholesale Value in Thousands of Dollars 2/				Total Value
	Salmon				
	Canned 3/	Others 4/	Roe 5/	Herring 6/	
1960	$ 35,285	$ 719	-	-	$ 36,004
61	38,225	1,152	-	-	39,377
62	16,158	229	-	-	16,387
63	10,487	222	-	-	10,709
64	15,500	366	-	-	15,866
1965	58,169	182	-	-	58,351
66	32,020	205	$ 167	-	32,392
67	17,421	391	585	$ 27	18,424
68	13,343	634	685	68	14,730
69	22,022	1,213	998	15	24,248
1970	59,670	2,017	1,956	17	63,660
71	34,197	1,387	2,157	31	37,772
72	12,778	610	1,571	50	15,009
73	6,948	1,854	1,763	27	10,592
74	18,383	1,050	1,292	193	20,918
1975	32,645	1,509	2,456	133	36,743
76 7/	48,089	3,358	5,301	296	57,044
17-Year Total	471,854	17,098	18,931	857	508,740
1960-69 Total	258,630	5,313	2,435	110	266,488
1970-76 Total	212,710	11,785	16,496	747	241,738
17-Year Average	27,756	1,006	1,721	86	29,926
1960-69 Average	25,863	531	609	37	26,649
1970-76 Average	30,387	1,684	2,357	107	34,534

1/ Wholesale value to the processor; in thousands rounded to nearest $1,000.
2/ Value by product derived from annual "Alaska Catch and Production Commercial Fisheries Statistics" (ADFG), "Food Fish Market Review and Outlook" (NMFS) and "Fishery Market News Weekly Summary (NMFS).
3/ Includes fish shipped out of Bristol Bay for canning.
4/ Includes fresh, frozen, mild-cured, pickled and salted products.
5/ Prior to 1966 roe production was insignificant.
6/ Fishery initiated in 1967; includes herring, roe and roe-on-kelp.
7/ Preliminary.

(Data Sources: 1, 3, 4, 11, 12, 22, 25, 26 and 28)

APPENDIX TABLE 24. Average round weight of commercial catch by district and species from ADFG samples, Bristol Bay, 1963-76.

Species and Year	Average Round Weight 1/									
	Naknek-Kvichak		Egegik		Ugashik		Nushagak		Togiak	
	Sample Size	Av. Wt.	Sample Size	Av. Wt.	Sample Size	Av. Wt.	Sample Size	Av. Wt.	Sample Size	Av. Wt.
SOCKEYE SALMON 2/										
1963	284	6.2	204	6.4	105	6.2	128	6.1	-	-
64	1,318	5.2	524	5.9	438	5.3	5,051	6.2	2,148	6.5
65	564	4.6	417	5.2	315	5.3	-	-	1,394	6.0
66	129	6.3	293	6.4	98	6.5	359	6.3	1,146	6.9
67	542	5.9	187	6.3	237	6.3	376	5.9	266	7.0
1968	380	5.8	299	6.1	292	5.9	389	6.5	539	7.0
69	272	5.4	261	5.7	268	5.4	273	5.5	423	5.8
70	273	5.0	271	4.4	293	4.8	972	5.7	463	5.8
71	296	5.5	277	6.3	276	6.4	831	6.5	517	7.0
72	-	-	299	6.2	-	-	257	5.4	722	6.7
1973	158	7.2	288	7.2	-	-	206	7.5	538	8.4
74	146	5.4	190	5.8	338	5.5	3/ 259	5.5	523	7.0
75	390	5.2	440	5.9	80	5.2	420	6.3	466	7.0
76 4/	745	6.0	692	5.7	183	6.4	270	6.8	309	7.9
KING SALMON 5/										
1964	-	-	-	-	-	-	258	14.7	39	15.9
65	-	-	-	-	-	-	347	20.1	257	21.8
66	-	-	-	-	-	-	796	18.3	147	20.7
67	-	-	-	-	-	-	971	21.0	32	21.3
68	-	-	-	-	-	-	558	22.2	212	25.4
1969	-	-	-	-	-	-	474	21.0	110	21.7
70	-	-	-	-	-	-	312	22.1	150	18.8
71	124	17.9	-	-	-	-	340	24.4	150	24.0
72	-	-	-	-	-	-	324	20.3	210	27.3
73	-	-	-	-	-	-	160	26.2	150	25.8
1974	-	-	-	-	-	-	80	26.3	110	27.1
75	-	-	-	-	-	-	140	21.9	25	10.1
76 4/	-	-	-	-	-	-	238	22.4	200	15.4
CHUM SALMON 5/										
1964	-	-	-	-	-	-	-	-	14	7.0
65	-	-	-	-	-	-	74	6.1	188	6.8
66	-	-	-	-	-	-	44	8.6	442	7.5
67	-	-	-	-	-	-	447	6.6	265	7.0
68	-	-	-	-	-	-	462	6.9	303	7.4
1969	-	-	-	-	-	-	395	6.1	360	6.8
70	-	-	-	-	-	-	310	6.6	310	6.6
71	-	-	-	-	-	-	360	6.7	320	7.2
72	-	-	-	-	-	-	450	6.8	673	7.4
73	-	-	-	-	-	-	243	7.0	620	7.2

(continued)

APPENDIX TABLE 24. (continued)

Species and Year	Average Round Weight 1/ Naknek-Kvichak Sample Size	Naknek-Kvichak Av. Wt.	Egegik Sample Size	Egegik Av. Wt.	Ugashik Sample Size	Ugashik Av. Wt.	Nushagak Sample Size	Nushagak Av. Wt.	Togiak Sample Size	Togiak Av. Wt.
1974	-	-	-	-	-	-	120	6.7	170	7.6
75	-	-	-	-	-	-	150	6.1	209	6.5
76 4/	-	-	-	-	-	-	490	6.7	305	7.8
PINK SALMON 5/										
1964	-	-	-	-	-	-	225	3.2	-	-
66	-	-	-	-	-	-	299	3.1	-	-
68	-	-	-	-	-	-	644	3.2	-	-
70	-	-	-	-	-	-	359	2.8	-	-
72	-	-	-	-	-	-	112	3.0	-	-
1974	-	-	-	-	-	-	180	3.3	-	-
76 4/	-	-	-	-	-	-	175	3.1	-	-
COHO SALMON 5/										
1964	-	-	-	-	-	-	39	6.8	-	-
66	-	-	-	-	-	-	399	7.5	-	-
67	-	-	-	-	-	-	473	7.0	-	-
68	-	-	-	-	-	-	129	7.6	-	-
69	68	7.0	198	7.1	219	7.8	195	6.5	239	8.7
1970	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-
1975	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-

1/ Average weight in pounds rounded to the nearest tenth of a pound. Data from ADFG age-weight-length (AWL) sample forms.
2/ Sockeye salmon average weight is weighted by numbers of fish in each random sample age group of the commercial catch irrespective of sex.
3/ Data from Ugashik River tower escapement samples, since no catch data was available.
4/ Preliminary unweighted arithmetic average.
5/ Unweighted arithmetic averages.

(Data Sources: 1,7, 10, 15 and 21)

APPENDIX TABLE 25. Average round weight of commercial catch by district and species from commercial processor annual reports, Bristol Bay, 1962-76.

Species and Year	Average Round Weight 1/					Average Bristol Bay 2/
	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	
SOCKEYE SALMON						
1962	-	-	-	-	-	5.6
63	-	-	-	-	-	5.2
64	-	-	-	-	-	5.2
65	-	-	-	-	-	4.5
66	-	-	-	-	-	6.1
1967	-	-	-	-	-	6.3
68	-	-	-	6.4	-	5.6
69	5.1	5.5	-	5.5	5.5	5.3
70	4.8	4.8	-	5.7	5.8	4.9
71	5.6	5.9	-	6.2	7.0	6.0
1972	6.1	6.0	6.1	6.0	6.4	6.0
73	6.7	7.1	7.3	7.1	7.9	7.1
74	5.5	5.7	5.2	5.7	7.0	5.8
75	5.2	5.7	5.2	6.1	6.7	5.5
76	5.8	5.9	6.2	6.6	7.5	6.1
KING SALMON						
1962	-	-	-	-	-	15.7
63	-	-	-	-	-	13.2
64	-	-	-	-	-	13.7
65	-	-	-	-	-	14.6
66	-	-	-	-	-	19.5
1967	-	-	-	-	-	21.0
68	-	-	-	21.6	-	17.7
69	18.0	-	-	19.2	23.0	19.7
70	21.5	19.6	-	18.3	17.0	18.4
71	27.0	21.7	-	21.7	22.3	22.1
1972	25.5	21.6	17.3	19.8	21.1	20.3
73	23.5	21.4	21.0	22.6	24.1	23.0
74	20.8	18.6	20.7	23.2	21.0	22.4
75	25.0	19.5	18.1	18.8	14.0	17.8
76	27.6	18.6	13.5	18.7	12.1	17.0
CHUM SALMON						
1962	-	-	-	-	-	6.8
63	-	-	-	-	-	6.3
64	-	-	-	-	-	7.1
65	-	-	-	-	-	7.0
66	-	-	-	-	-	7.5
1967	-	-	-	-	-	6.8
68	-	-	-	-	-	6.3

(continued)

APPENDIX TABLE 25. (continued)

Species and Year	Average Round Weight 1/ Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Average Bristol Bay 2/
69	-	6.1	5.4	6.0	5.7	5.9
70	5.8	6.5	-	5.9	6.3	5.9
71	6.5	-	-	6.4	6.7	6.5
1972	6.5	6.4	5.7	6.5	6.6	6.5
73	7.3	6.9	7.7	7.0	7.3	7.1
74	6.4	6.4	7.2	6.2	7.4	6.6
75	6.3	6.2	6.1	6.1	6.6	6.3
76	5.9	5.8	-	6.9	7.1	6.8
PINK SALMON						
1962	-	-	-	-	-	3.2
64	-	-	-	-	-	3.0
66	-	-	-	-	-	3.1
68	-	-	-	-	-	3.0
70	2.9	-	-	3.0	3.7	3.0
1972	3.4	-	-	3.1	3.8	3.1
74	4.3	3.9	4.1	3.6	4.4	4.0
76	3.7	3.8	-	3.3	4.1	3.4
COHO SALMON						
1962	-	-	-	-	-	6.3
63	-	-	-	-	-	6.9
64	-	-	-	-	-	6.0
65	-	-	-	-	-	6.3
66	-	-	-	-	-	7.5
1967	-	-	-	-	-	7.0
68	-	8.6	9.1	7.3	8.8	8.5 3/
69	-	6.3	7.6	6.2	8.7	7.0
70	-	-	-	5.7	8.2	6.8
71	-	-	-	6.3	-	6.3
1972	-	6.1	-	6.3	7.6	7.0
73	5.6	6.3	6.8	6.0	7.5	6.7
74	6.7	6.5	7.2	6.7	8.6	7.9
75	6.7	7.2	7.2	6.1	9.2	8.6
76	5.5	6.9	-	6.0	8.3	7.6

1/ Average weight in pounds rounded to the nearest tenth of a pound, and weighted by the number of fish in the catch of each processor. Data extracted from processor's annual "Bristol Bay Final Operations Report" (BB-CF/303); "Bristol Bay Salmon Catch Report" (BB-CF/301); and the "Alaska Commercial Operator's Annual Report" (11-122).

2/ Average weight in 1962-68 from annual "Alaska Catch and Production Commercial Fisheries Statistics" (Statistical Leaflet Series), and 1969-76 weighted by district from processor catch reports.

3/ Weighted by district from processor annual reports.

(Data Sources: 1, 4 and 13)

APPENDIX TABLE 26. Salmon roe production and value by species, Bristol Bay, 1966-76. 1/

Year	Number Operators	Pounds of Roe 2/						Value of Finished Product 3
		Sockeye	King	Chum	Pink	Coho	Total	
1966	3	-	-	-	-	-	181,635	$ 167,000
67	10	143,128	122,377	236,774	-	29,797	532,076	585,000
68	8	264,867	58,855	152,900	76,658	32,156	585,436	685,000
69	14	708,025	92,284	98,412	-	25,365	924,086	998,000
70	16	1,497,065	91,354	255,154	36,013	1,648	1,881,234	1,956,000
1971	14	1,494,127	125,254	254,385	-	1,990	1,875,756	2,157,000
72	13	302,763	80,945	282,605	12,160	4,366	682,839	1,571,000
73	11	178,556	56,315	399,227	-	34,037	670,275 4/	1,763,000
74	8	152,541	50,824	119,925	126,200	17,029	466,519	1,292,000
75 5/	13	505,156	21,971	132,036	-	38,682	697,845	2,456,000
1976 5/	13	865,735	58,430	476,116	92,819	12,757	1,505,857	5,301,000
10-Year Total 6/		6,111,963	758,609	2,407,534	343,850 7/	197,827	9,821,923	$18,764,000
10-Year Average 6/		611,196	75,861	240,753	68,770 7/	19,783	982,192	$ 1,876,400

1/ Basic production data extracted from "Bristol Bay Final Operations Report" (BB-CF/303) and "Alaska Fishery Operators Annual Report" (11-122). Does not include roe production from fish processed outside Bristol Bay.
2/ Reported in both gross and net weights; whenever available net weight (after water-loss and dehydration) was used.
3/ Value reflects amount received by operating processors for the raw product, rounded to nearest $1,000. Value extracted from annual "Alaska Catch and Production Statistics" statistical leaflet series.
4/ Includes 2,140 pounds unreported by species.
5/ Preliminary.
6/ Ten-year total and average (1967-76).
7/ Five-year total and average.

(Data Sources: 4 and 12)

APPENDIX TABLE 27. Sockeye salmon escapement by district, Bristol Bay, 1957-76.

Year	Naknek-Kvichak 1/	Egegik	Ugashik 2/	Nushagak 3/	Togiak 4/	Total
1957	3,604,050	391,207	214,802	498,727	25,000	4,733,786
58	907,553	246,354	279,546	1,277,933	72,000	2,783,386
59	3,737,238	1,072,459	219,228	3,041,885	209,640	8,280,450
60	16,698,911	1,798,764	2,341,400	1,673,258	192,010	22,704,343
61	4,146,963	701,538	366,439	859,633	127,454	6,202,027
1962	3,394,580	1,027,482	274,026	937,698	71,552	5,705,338
63	1,447,422	997,602	397,004	1,063,856	127,596	4,033,480
64	2,555,424	849,576	482,770	1,339,004	114,674	5,341,448
65	25,218,744	1,444,608	997,862	1,099,266	112,786	28,873,266
66	4,965,965	804,246	714,836	1,630,726	122,998	8,238,771
1967	4,174,474	636,864	243,930	875,452	91,330	6,022,050
68	3,774,534	338,654	70,896	976,664	56,418	5,217,166
69	9,907,896	1,015,554	160,380	1,212,586	125,066	12,421,482
70	14,844,868	919,734	735,024	1,966,156	212,896	18,678,678
71	3,510,448	634,014	529,752	1,353,382	213,242	6,240,838
1972	1,747,668	546,402	79,428	528,650	81,970	2,984,118
73	618,510	328,842	38,988	581,307	114,930	1,682,577
74	5,889,750	1,275,630	61,854	2,267,468	103,492	9,598,194
75	15,267,616	1,173,840	429,336	2,273,038	189,162	19,332,992
76	3,367,854	509,160	356,308	1,486,276	200,590	5,920,188
20-Year Total	129,780,468	16,712,530	8,993,809	26,942,965	2,564,806	184,994,578
1957-66 Total	66,676,850	9,333,836	6,287,913	13,421,986	1,175,710	96,896,295
1967-76 Total	63,103,618	7,378,694	2,705,896	13,520,979	1,389,096	88,098,283
20-Year Average	6,489,023	835,627	449,690	1,347,148	128,240	9,249,729
1957-66 Average	6,667,685	933,384	628,791	1,342,199	117,571	9,689,630
1967-76 Average	6,310,362	737,869	270,590	1,352,098	138,910	8,809,828

1/ Includes Kvichak, Branch, and Naknek Rivers 1957 to date.
2/ Includes Mother Goose system 1960-67 and 1976.
3/ Includes Wood, Igushik, Nuyakuk, and Snake Rivers 1957 to date; Nushagak-Mulchatna included 1957-58 and 1961 to date.
4/ Includes Togiak River system 1957 to date; Togiak tributaries 1959 to date; Kulukak system 1961 to date.

(Data Sources: 1, 7, 18, 19, 23 and 27)

APPENDIX TABLE 28. Inshore catch and escapement of sockeye salmon in the Naknek-Kvichak district by river system, Bristol Bay, 1957-76.

Year	Catch	Escapement by River Systems 1/				Total Ru
		Kvichak	Branch	Naknek	Total	
1957	4,578,643	2,842,810	126,595	634,645	3,604,050	8,182,69
58	922,611	534,785	94,650	278,118	907,553	1,830,16
59	1,689,425	680,000	825,431	2,231,807	3,737,238	5,426,66
60	9,847,848	14,630,000	1,240,530	828,381	16,698,911	26,546,75
61	8,166,983	3,705,849	90,036	351,078	4,146,963	12,313,94
1962	2,281,284	2,580,884	90,630	723,066	3,394,580	5,675,86
63	957,902	338,760	203,304	905,358	1,447,422	2,405,32
64	2,243,701	957,120	248,700	1,349,604	2,555,424	4,799,12
65	19,139,567	24,325,926	175,020	717,798	25,218,744	44,358,31
66	5,397,538	3,775,184	174,336	1,016,445	4,965,965	10,363,50
1967	2,337,226	3,216,208	202,626	755,640	4,174,474	6,511,70
68	1,216,858	2,557,440	193,872	1,023,222	3,774,534	4,991,39
69	4,655,072	8,394,204	182,490	1,331,202	9,907,896	14,562,96
70	17,803,805	13,935,306	177,060	732,502	14,844,868	32,648,67
71	5,857,378	2,387,392	187,302	935,754	3,510,448	9,367,82
1972	1,102,365	1,009,962	151,188	586,518	1,747,668	2,850,03
73	168,249	226,554	35,280	356,676	618,510	786,75
74	538,163	4,433,844	214,848	1,241,058	5,889,750	6,427,91
75	3,085,416	13,140,450	100,480	2,026,686	15,267,616	18,353,03
76	2,577,291 2/	1,965,282	81,822	1,320,750	3,367,854	5,945,14
20-Year Total	94,567,325	105,637,960	4,796,200	19,346,308	129,780,468	224,347,79
1957-66 Total	55,225,502	54,371,318	3,269,232	9,036,300	66,676,850	121,902,35
1967-76 Total	39,341,823	51,266,642	1,526,968	10,310,008	63,103,618	102,445,44
20-Year Average	4,728,366	5,281,898	239,810	967,315	6,489,023	11,217,39
1957-66 Average	5,522,550	5,437,132	326,923	903,630	6,667,685	12,190,23
1967-76 Average	3,934,182	5,126,664	152,697	1,031,001	6,310,362	10,244,54

1/ Tower count 1957-76.
2/ Preliminary.

(Data Sources: 7, 23, 27 and 28)

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APPENDIX TABLE 29. Inshore catch and escapement of sockeye salmon in the Egegik and Ugashik districts by river system, Bristol Bay, 1957-76.

	Egegik District			Ugashik District				
		Escapement			Escapement by River System			
Year	Catch	Egegik 1/	Total Run	Catch	Ugashik 1/	Mother Goose 2/	Total	Total Run
1957	814,459	391,207	1,205,666	350,858	214,802	-	214,802	565,660
58	500,684	246,354	747,038	433,813	279,546	-	279,546	713,359
59	662,391	1,072,459	1,734,850	423,414	219,228	-	219,228	642,642
60	1,446,884	1,798,764	3,245,648	752,634	2,304,200	37,200	2,341,400	3,094,034
61	2,606,076	701,538	3,387,614	357,223	348,639	17,800	366,439	723,662
1962	638,862	1,027,482	1,666,344	243,159	255,426	18,600	274,026	517,185
63	695,582	997,602	1,693,184	188,695	388,254	8,750	397,004	585,699
64	1,103,935	849,576	1,953,511	576,768	472,770	10,000	482,770	1,059,538
65	3,179,559	1,444,608	4,624,167	925,612	996,612	1,250	997,862	1,923,552
66	2,101,174	804,246	2,905,420	445,458	704,436	10,400	714,836	1,160,294
1967	1,070,942	636,864	1,707,806	163,744	238,830	5,100	243,930	407,674
68	671,554	338,654	1,010,208	82,457	70,896	-	70,896	153,353
69	889,322	1,015,554	1,904,876	169,845	160,380	-	160,380	330,225
70	1,403,509	919,734	2,323,243	171,541	735,024	-	735,024	906,565
71	1,306,682	634,014	1,940,696	954,068	529,752	-	529,752	1,483,820
1972	839,820	546,402	1,386,222	17,440	79,428	-	79,428	96,868
73	221,337	328,842	550,179	3,920	38,988	-	39,988	42,908
74	172,253	1,275,630	1,447,883	2,151	61,854	-	61,854	64,005
75	964,024	1,173,840	2,137,864	14,558	429,336	-	429,336	443,894
76	1,304,596 3/	509,160	1,813,756	185,812 3/	341,808	14,500	356,308	542,120
20-Year Total	22,673,645	16,712,530	39,386,175	6,463,248	8,870,209	123,600	8,993,809	15,457,057
1957-66 Total	13,829,606	9,333,836	23,163,442	4,697,712	6,183,913	104,000	6,287,913	10,985,625
1967-76 Total	8,844,039	7,378,694	16,222,733	1,765,536	2,686,296	19,600	2,705,896	4,471,432
20-Year Average	1,133,682	835,627	1,969,309	323,162	443,510	13,733	449,690	772,853
1957-66 Average	1,382,961	933,384	2,316,344	469,771	618,391	14,857	628,791	1,098,563
1967-76 Average	884,404	737,869	1,622,273	176,554	268,630	9,800	270,590	447,143

1/ Tower count: 1957-76.
2/ Aerial survey estimate 1960-67 and 1976.
3/ Preliminary.
4/ Only years and systems with escapement data are included in calculating averages.

(Data Sources: 1, 7 and 23)

APPENDIX TABLE 30. Inshore catch and escapement of sockeye salmon in the Nushagak district by river system, Bristol Bay, 1957-76.

Year	Catch	Escapement by River System						Total Run
		Wood[1/]	Igushik[2/]	Nuyakuk[3/]	Nush.-Mul.[4/]	Snake[5/]	Total	
1957	491,498	288,727	130,000	67,000	10,000	3,000	498,727	990,225
58	1,092,156	960,455	107,478	196,000	5,000	9,000	1,277,933	2,370,089
59	1,719,687	2,209,266	643,808	48,861	-	139,950	3,041,885	4,761,572
60	1,517,988	1,016,073	495,087	145,500	-	16,598	1,673,258	3,191,246
61	511,483	460,737	294,252	79,788	20,000	4,856	859,633	1,371,116
1962	1,461,766	873,888	15,660	37,890	8,500	1,760	937,698	2,399,464
63	842,744	721,404	92,184	166,608	45,700	37,960	1,063,856	1,906,600
64	1,420,941	1,076,112	128,532	103,224	18,700	12,436	1,339,004	2,759,945
65	793,323	675,156	180,840	203,070	28,200	12,000	1,099,266	1,892,589
66	1,170,271	1,208,682	206,360	161,010	50,174	4,500	1,630,726	2,800,997
1967	657,711	515,772	281,772	20,250	46,658	11,000	875,452	1,533,163
68	749,281	649,344	194,508	96,642	32,070	4,100	976,664	1,725,945
69	773,207	604,338	512,328	69,828	16,792	9,300	1,212,586	1,985,793
70	1,188,534	1,161,964	370,920	364,648	44,824	23,800	1,966,156	3,154,690
71	1,256,799	851,202	210,960	224,382	58,338	8,500	1,353,382	2,610,181
1972	381,347	430,602	60,018	28,596	7,434	2,000	528,650	909,997
73	272,093	330,474	59,508	110,016	80,394	915	581,307	853,400
74	510,571	1,708,836	358,752	154,614	30,000	15,266	2,267,468	2,778,039
75	645,902	1,270,116	241,086	669,918	82,400	9,518	2,273,038	2,918,940
76	1,225,826 6/	817,008	186,120	425,220	45,200	12,728	1,486,276	2,712,102
20-Year Total	18,683,128	17,830,156	4,770,173	3,373,065	630,384	339,187	26,942,965	45,626,093
1957-66 Total	11,021,857	9,490,500	2,294,201	1,208,951	186,274	242,060	13,421,986	24,443,843
1967-76 Total	7,661,271	8,339,656	2,475,972	2,164,114	444,110	97,127	13,520,979	21,182,250
20-Year Average	934,156	891,508	238,509	168,653	31,519	16,959	1,347,148	2,281,305
1957-66 Average	1,102,186	949,050	229,420	120,895	18,627	24,206	1,342,199	2,444,384
1967-76 Average	766,127	833,966	247,597	216,411	44,411	9,713	1,352,098	2,118,225

1/ Tower count 1957-76.
2/ Aerial survey estimate 1957; Tower count 1958-76.
3/ Aerial survey estimate 1957-58; tower count 1959-76.
4/ Aerial survey estimate 1957-58 and 1961-65; tower counts 1966-70 and 1973-74. Tower not operated in 1971-72 and 1975-76. Escapement estimates for these years were based on the average ratio of Nuyakuk/ Nushagak-Mulchatna River system in those years when data was available.
5/ Aerial survey estimate 1957-59 and 1965-72; tower count 1960-64; wier count 1973-76.
6/ Preliminary
7/ Only years and systems with escapement data were included in calculating averages.

(Data Sources: 7, 18, 20 and 23)

APPENDIX TABLE 31. Inshore catch and escapement of sockeye salmon in the Togiak district by river system, Bristol Bay, 1957-76.

Year	Catch	Escapement by River System				Total Run
		Togiak 1/	Tributaries 2/	Kulukak 2/	Total	
1957	40,044	25,000	-	-	25,000	65,044
58	36,402	72,000	-	-	72,000	108,402
59	113,202	178,740	30,900	-	209,640	322,842
60	139,648	162,810	29,200	-	192,010	331,658
61	192,161	95,454	26,800	5,200	127,454	319,615
1962	92,945	47,352	14,600	9,600	71,552	164,497
63	186,213	102,396	13,800	11,400	127,596	313,809
64	250,775	95,574	9,300	9,800	114,674	365,449
65	217,100	88,386	8,100	16,300	112,786	329,886
66	199,799	91,098	13,100	18,800	122,998	322,797
1967	101,107	69,330	12,000	10,000	91,330	192,437
68	72,699	42,918	7,000	6,500	56,418	129,117
69	134,252	109,226	7,400	8,400	125,066	259,318
70	153,377	192,096	10,800	10,000	212,896	366,273
71	209,060	190,842	9,400	13,000	213,242	422,302
1972	75,261	74,070	4,500	3,400	81,970	157,231
73	95,723	95,730	11,200	8,000	114,930	210,653
74	139,341	82,992	15,600	4,900	103,492	242,833
75	188,914	160,962	19,600	8,600	189,162	378,076
76	299,367 3/	158,190	31,200	11,200	200,590	499,957
20-Year Total	2,937,390	2,135,206	274,500	155,100	2,564,806	5,502,196
1957-66 Total	1,468,289	958,810	145,800	71,100	1,175,710	2,643,999
1967-76 Total	1,469,101	1,176,396	128,700	84,000	1,389,096	2,858,197
20-Year Average 4/	146,870	106,760	15,250	9,694	128,240	275,110
1957-66 Average	146,829	95,881	18,225	11,850	117,571	264,400
1967-76 Average	146,910	117,640	12,870	8,400	138,910	285,820

1/ Aerial survey estimate 1957-59; Tower count 1960-76.
2/ Aerial survey estimate.
3/ Preliminary.
4/ Only years and systems with escapement data were included in calculating averages.

(Data Sources: 1, 7 and 23)

APPENDIX TABLE 32. Inshore return of sockeye salmon by district, Bristol Bay, 1957-76.

Year	Catch and Escapement by District					
	Naknek-Kvichak	Egegik	Ugashik	Nushagak	Togiak	Total
1957	8,182,693	1,205,666	565,660	990,225	65,044	11,009,28
58	1,830,164	747,038	713,359	2,370,089	108,402	5,769,05
59	5,426,663	1,734,850	642,642	4,761,572	322,842	12,888,56
60	26,546,759	3,245,648	3,094,034	3,191,246	331,658	36,409,34
61	12,313,946	3,387,614	723,662	1,371,116	319,615	18,115,95
1962	5,675,864	1,666,344	517,185	2,399,464	164,497	10,423,35
63	2,405,324	1,693,184	585,699	1,906,600	313,809	6,904,61
64	4,799,124	1,953,511	1,059,538	2,759,945	365,449	10,937,56
65	44,358,311	4,624,167	1,923,552	1,892,589	329,886	53,128,50
66	10,363,503	2,905,420	1,160,294	2,800,997	322,797	17,553,01
1967	6,511,700	1,707,806	407,674	1,533,163	192,437	10,352,78
68	4,991,392	1,010,208	153,353	1,725,945	129,117	8,010,01
69	14,562,968	1,904,876	330,225	1,985,793	259,318	19,043,18
70	32,648,673	2,323,243	906,565	3,154,690	366,273	39,399,44
71	9,367,826	1,940,696	1,483,820	2,610,181	422,302	15,824,82
1972	2,850,033	1,386,222	96,868	909,997	157,231	5,400,35
73	786,759	550,179	42,908	853,400	210,653	2,443,89
74	6,427,913	1,447,883	64,005	2,778,039	242,833	10,960,67
75	18,353,032	2,137,864	443,894	2,918,940	378,076	24,231,80
76 1/	5,945,145	1,813,756	542,120	2,712,102	499,957	11,513,08
20-Year Total	224,347,793	39,386,175	15,457,057	45,625,586	5,502,196	330,318,80
1957-66 Total	121,902,352	23,163,442	10,985,625	24,443,336	2,643,999	183,138,75
1967-76 Total	102,445,441	16,222,733	4,471,432	21,182,250	2,858,197	147,180,05
20-Year Average	11,217,390	1,969,309	772,853	2,281,279	275,110	16,515,94
1957-66 Average	12,190,235	2,316,344	1,098,563	2,444,334	264,400	18,318,87
1967-76 Average	10,244,544	1,622,273	447,143	2,118,225	285,820	14,718,00

1/ Preliminary.

(Data Sources: 1, 7, 18, 20, 23, 27, and 28)

APPENDIX TABLE 33. Inshore catch and escapement of pink salmon in the Nushagak district by river system, Bristol Bay, 1958-76. 1/

Year	Catch	Escapement by River System						
		Wood 2/	Igushik 3/	Nuyakuk 4/	Nush-Mul. 5/	Snake 5/	Total	Total Ru
1958	1,113,794			2,500,000			2,500,000	3,613,79
60	289,781			146,359			146,359	436,14
62	880,424	25,000	12,000	493,914	6,100	6,000	543,014	1,423,43
64	1,497,817	1,560	450	883,500	25,000	50	910,560	2,408,37
66	2,337,066			1,442,424			1,442,424	3,779,49
68	1,705,150			2,161,116			2,161,116	3,866,26
70	417,834			152,580			152,580	570,41
72	67,953			58,536			58,536	126,48
74	413,613	44,800	7,500	529,216	3,100	900	585,516	999,12
76	741,050 6/	20,000	5,070	794,478	41,800	50	861,398	1,602,44
Total	9,464,482	91,360	25,020	9,162,123	76,000	7,000	9,361,503	18,825,98
Average	946,448	22,840	6,255	916,212	19,000	1,750	936,150	1,882,59

1/ Includes only even-numbered years.
2/ Aerial survey estimate 1962 and 1974-76; tower count 1964.
3/ Aerial survey estimate 1962-74; aerial survey estimate and tower count 1976.
4/ Tower count 1960-76; aerial survey estimate 1958, and below counting tower 1962-64 and 1974-76.
5/ Aerial survey estimates.
6/ Preliminary.

(Data Sources: 1, 5, 15 and 28)

APPENDIX TABLE 34. South Unimak and Shumigan Island sockeye and chum salmon catch, Alaska Peninsula, 1957-76. 1/

Year	South Unimak		Shumigan Islands		Total	
	Sockeye	Chum	Sockeye	Chum	Sockeye	Chum
1957	115,175	196,614	49,047	158,499	164,222	355,113
58	103,629	112,359	31,371	120,037	135,000	232,396
59	58,073	59,608	20,390	24,972	78,463	84,850
60	138,581	83,893	30,444	47,045	169,025	130,938
61	199,105	157,006	76,381	95,746	275,486	252,272
1962	271,553	208,700	76,907	194,184	348,460	402,884
63	116,066	80,559	54,743	109,690	170,809	190,249
64	159,206	161,019	141,696	213,029	300,902	374,048
65	567,605	120,462	238,396	139,320	806,001	259,782
66	528,205	215,071	60,900	92,913	589,105	307,984
1967	185,866	72,825	81,591	97,877	267,457	170,702
68	341,973	115,400	270,907	209,819	612,880	325,219
69	780,682	254,123	97,433	37,459	878,115	291,582
70	1,530,500	402,700	162,000	161,300	1,692,500	564,000
71	564,600	554,000	85,000	404,400	649,600	958,400
1972	442,700	467,800	92,500	205,400	535,200	673,200
73	239,000	188,500	42,500	66,100	281,500	254,600
74 2/	62,200	15,100	43,300	36,700	105,500	51,800
75 2/	190,500	64,700	49,300	35,500	239,800	100,200
76 2/	244,500	327,200	73,000	106,000	317,500	433,200
20-Year Total	6,839,719	3,857,639	1,777,806	2,555,990	8,617,525	6,413,629
1957-66 Total	2,257,198	1,395,291	780,275	1,195,435	3,037,473	2,590,726
1967-76 Total	4,582,621	2,462,455	997,631	1,360,755	5,580,252	3,823,103
20-Year Average	341,986	192,882	88,890	127,800	430,876	320,681
1957-66 Average	225,720	139,529	78,028	119,544	303,747	259,073
1967-76 Average	458,262	246,246	99,763	136,076	558,025	382,310

1/ South Unimak includes statistical area 284, while Shumigan Islands includes statistical area 282.
2/ Preliminary.

(Data Sources: 16 and 22)

APPENDIX TABLE 35. Comparative subsistence catch of salmon by district and species, Bristol Bay, 1963-76.

Year	Catch in Number of Fish 1/ Sockeye	King	Chum	Pink	Coho	Total
			NAKNEK-KVICHAK DISTRICT			
1963	61,700	500	100	+	400	62,700
64	85,900	500	+	1,100	800	88,300
65	71,900	500	100	+	300	72,800
66	74,500	600	300	2,700	400	78,500
67	68,500	500	100	+	500	69,600
1968	71,000	500	100	300	200	72,100
69	76,300	400	100	+	400	77,200
70	108,200	300	700	100	200	109,500
71	66,400	200	+	+	100	66,700
72	52,200	400	400	700	100	53,800
1973	41,600	600	300	+	500	43,000
74	102,600	1,000	1,100	1,600	200	106,500
75	122,600	700	300	+	200	123,800
76	82,200	900	900	1,500	600	86,100
14-Year Total	1,085,600	7,600	4,500	8,000	4,900	1,110,600
14-Year Average	77,500	500	300	1,100	400	79,300
			EGEGIK DISTRICT			
1972	0	0	0	0	100	100
73	0	0	0	0	100	100
74	300	+	+	0	+	300
75	200	+	+	+	+	200
76	2 permits issued none returned					
5-Year Total	500	+	+	+	200	700
5-Year Average	100	+	+	+	+	100
			UGASHIK DISTRICT			
1963	300	+	100	+	600	1,000
64	300	0	0	0	0	300
65 4/	-	-	-	-	-	-
66	1,000	0	0	0	0	1,000
67	700	+	100	+	500	1,300
1968	300	+	100	+	300	700
69	100	0	0	0	200	300
70	1,400	+	+	0	+	1,400
71	300	0	+	0	100	400
72	200	100	100	+	300	700

(continued)

APPENDIX TABLE 35. (continued)

Year	Catch in Number of Fish 1/ Sockeye	King	Chum	Pink	Coho	Total
			UGASHIK DISTRICT (continued)			
1973	200	+	100	+	600	900
74	200	100	+	+	500	800
75	700	+	+	+	1,200	1,900
76	1,200	100	100	100	300	1,800
13-Year Total	6,900	300	600	100	4,600	12,500
13-Year Average	500	+	+	+ 2/	400	1,000
			NUSHAGAK DISTRICT 3/			
1963	41,200	3,600	8,500	+	3,900	57,200
64	31,800	2,900	8,700	4,100	4,900	52,400
65	47,500	4,600	18,400	200	5,400	76,100
66	23,600	3,700	6,000	4,900	2,400	40,600
67	34,900	3,700	14,000	800	4,000	57,400
1968	30,000	6,600	8,600	5,800	1,900	52,900
69	27,700	7,100	8,200	100	7,100	50,200
70	38,200	6,900	8,800	1,000	1,000	55,900
71	42,400	4,400	4,200	+	2,300	53,300
72	24,100	4,000	8,200	1,200	1,000	38,500
1973	28,000	6,600	7,600	100	2,200	44,500
74	39,300	7,600	9,600	4,100	4,600	65,200
75	47,300	7,100	5,600	1,300	4,300	65,600
76	34,700	6,900	7,200	2,700	2,100	53,600
14-Year Total	490,700	75,700	123,600	26,300	47,100	763,400
14-Year Average	35,100	5,400	8,800	3,400 2/	3,400	54,500
			TOGIAK DISTRICT			
1965	4,600	100	1,600	100	2,200	8,600
74	7,400	1,200	2,000	500	1,800	12,900
75	4,600	800	1,600	+	2,800	9,800
76	2,800	500	900	100	500	4,800
4-Year Total	19,400	2,600	6,100	700	7,300	36,100
4-Year Average	4,800	700	1,500	300	1,800	9,000

(continued)

APPENDIX TABLE 35. (continued)

Year	Catch in Number of Fish 1/ Sockeye	King	Chum	Pink	Coho	Total
			TOTAL BRISTOL BAY			
1963	103,200	4,100	8,700	+	4,900	120,900
64	118,000	3,400	8,700	5,200	5,700	141,000
65	119,400	5,100	18,500	200	5,700	148,900
66	99,100	4,300	6,300	7,600	2,800	120,100
67	104,100	4,200	14,200	800	5,000	128,300
1968	101,300	7,100	8,800	6,100	2,400	125,700
69	104,100	7,500	8,300	100	7,700	127,700
70	147,800	7,200	9,500	1,100	1,200	166,800
71	109,100	4,600	4,200	+	2,500	120,400
72	76,500	4,500	8,700	1,900	1,400	93,000
1973	69,800	7,200	8,000	100	3,300	88,400
74	149,800	9,900	12,700	6,200	7,100	185,700
75	175,400	8,600	7,500	1,300	8,500	201,300
76	120,900	8,400	9,100	4,400	3,500	146,300
14-Year Total	1,598,500	86,100	133,200	35,000	61,700	1,914,500
14-Year Average	114,200	6,200	9,500	4,600 2/	4,400	136,800

1/ Catches rounded to nearest 100.
2/ Even-year average.
3/ Since 1975 catch data derived from subsistence permits only, prior years are expanded to include all family units of the area.

(Data Sources: 1 and 8)

APPENDIX TABLE 36. Commercial catch of herring and herring roe-on-kelp production, Bristol Bay, 1967-76. 1/

Year	Number Operators	Number Fishermen	Number Deliveries	Catch and Production in Pounds
		HERRING 2/		
1967	1	27	100	268,902
68	2	37	130	181,765
69	2	23	40	94,481
70	3	17	27	55,195
71	-	-	-	0
1972	1	18	36	162,434
73	2	26	47	102,147
74	3	11	17	246,256
75	2	39	68	111,185
76	-	-	-	0
Total	16	198	465	1,222,365
8-Year Average	2	25	58	152,796
		HERRING ROE-ON-KELP 3/		
1968	1	1	6	54,600
69	1	3	20	10,125
70	1	5	23	38,855
71	1	12	43	51,795
72	1	12	32	64,165
1973	1	10	11	11,596
74	3	26	49	125,646
75	2	44	98	111,087
76	5	49	118	295,780
Total	16	162	400	763,649
9-Year Average	2	18	44	84,850

1/ All herring and kelp harvest and production has originated in the Togiak district.
2/ Catch not entirely comparable, as harvest prior to 1973 reflects females only, as most males were discarded and not weighed. The 1973-75 harvests include both sexes.
3/ Harvest of roe-on-kelp has been limited to rockweed kelp (Fucus furcatus).

MANAGEMENT OUTLOOK FOR THE BRISTOL BAY COMMERCIAL SALMON FISHERY IN 1976

The forecasted inshore run of 11.1 million sockeye salmon to Bristol Bay in 1976 will slightly exceed the non-peak year average return of 11.0 million since 1957. The anticipated inshore harvest of about 5.7 million would also slightly surpass the average non-peak harvest of 5.1 million. Attached is a table (see Table 1) outlining sockeye salmon forecasts by system, escapement goals and projected harvests to provide more detail and clarification. The combined sockeye salmon escapement goals for all eleven of the major river systems in Bristol Bay total 5.5 million, which is the standard off-year escapement requirement in the year following the peak cycle year (1975). The Kvichak River system exhibits highly cyclic production and 1976 is an off year in this five year cycle.

Management effort will be directed at achieving escapement goals in all systems. Although fishery closures will be necessary to achieve desired escapement goals, cautious early-season "testing" of run strength utilizing the commercial fleet and short fishing periods will form an important part of management plans in 1976.

Although the Limited Entry Program will continue to restrict total effort, the available fishing effort during the coming year is expected to be comparable with previous years. However, total fishing "power" will be greater due to elimination of the sliding gear schedule. Because the forecasted harvest will not be evenly distributed among the various districts, effort is expected to concentrate in those districts where the allowable harvest is greatest. The increase in actual fishing gear plus in-season shifts in distribution of effort will be counterbalanced by reducing length of fishing periods. In all probability, 12-hour periods will be the rule in 1976. Drift fishermen will be allowed 150 fathoms of gear and set net fishermen 50 fathoms. The increase in gear allowed per fisherman will directly affect both the number and length of fishing periods in 1976.

Ultimate fishing time allowed in the various districts will depend upon the apparent strength of the run and the available fishing effort. Indications from early season catches along with a comprehensive program of offshore and inshore test fishing, aerial surveys, and escapement counts, will provide advance indications of run strength to regulate fishing time in the various districts.

All five species of salmon are harvested commercially in Bristol Bay. Management goals will also be directed at achieving adequate escapements of the other species in several districts. King salmon in the Nushagak district, for example, require special management considerations. Sizable chum salmon catches are realized in some years also. Returns of chum salmon in 1976, which will be primarily from the 1972 brood year, are expected to be lower than average. King salmon catches have been down from historic levels for several years and are not expected to be much higher during this coming season. A good pink salmon escapement to the Nushagak district in 1974 is expected to produce a significant run in 1976. A record run of pink salmon to the Naknek-Kvichak district in 1974 may also produce a larger than usual run to this district in 1976, although this district does not normally produce significant numbers of pink salmon.

The general management scheme for the various districts is anticipated to proceed as follows:

Naknek-Kvichak District:

Harvestable numbers of sockeye salmon in excess of escapement requirements will allow fishery managers in this district some degree of latitude during in-

season run development. Limited fishing time will be allowed in the Naknek and Kvichak sections to permit harvest of fish in excess of the escapement goals. The large fishing effort expected in this district will be offset by reducing the length of fishing periods allowed.

Egegik District:

The run to this system is also expected to be in excess of escapement requirements and a season catch approaching the long term average is expected. Actual fishing time will depend on the amount of available fishing effort, run timing, and indicated magnitude of the run.

Ugashik District:

The forecasted run to this system is only slightly over that required for escapement purposes. Anticipated fishing time will be minimal in this district. Run development will be closely monitored and, like Egegik, actual fishing time will depend on the apparent magnitude of the return, timing, and available effort.

Nushagak District:

With a harvestable surplus of sockeye salmon forecasted for four of this district's five contributing systems, fishing time is anticipated during the Emergency Order period. Separate openings for the Igushik and/or the Nushagak sections may be required to balance the catch to the strength of the runs bound for the Igushik and Wood River systems. Availability and distributions of fishing effort will bear heavily on the ultimate fishing time and length of periods permitted in this district.

Fishing on king salmon stocks in this district will be closely monitored in order to obtain desired escapements to the important spawning areas of the Nushagak/Mulchatna system. Strength of the king salmon run to the district is not expected to be above that of the previous few years so some limitation in fishing time prior to June 23 can be expected to maximize these escapements.

The Nushagak pink salmon return is expected to result in a harvest of about 2.0 million fish after escapement requirement of 0.6 to 1.0 million.

Togiak District:

The forecasted sockeye salmon run to this system is in excess of the escapement requirement and fishing time is anticipated to gauge run strength. Available effort compared with that encountered in recent years and actual run strength in this district will have a considerable bearing on the actual amount of fishing time permitted.

Further restrictions in fishing time may also be required to provide additional protection to chum salmon stocks bound for this district. Chum salmon are not expected to be strong in 1976.